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The analysis of potential space tourism market

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THE ANALYSIS OF POTENTIAL SPACE TOURISM MARKET

A continuation of project started by RIT Professor C.J. Wallington and its students in Space Tourism Development Course (Winter 2004/2005)

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Abstract

In December of 2004, RIT Professor C.J. Wallington and students in the space tourism development course (winter 2004/ 2005) conducted a space tourism market survey. The target markets for these surveys were comprised of acquaintances (including family) of RIT students who took the space tourism course.

Professor Wallington was interested in finding out if the student's families, friends, and acquaintances would want to take a space trip. The survey was comprised of twenty-one questions that focused on gathering demographic information, knowledge of and interest in zero-gravity, suborbital flights, and low earth orbit habitats. The results of this survey were never tallied and analyzed. There is a need for the analysis of this data and further expansion of the original research.

The findings of this research helped in identifying market needs and wants with regards to space tourism. It was revealed that the interviewees place great attention to safety, comfort, and health. The results also revealed the preferred potential price for zero-gravity flights, suborbital flights, and visits to low earth orbit (LEO) habitats that this potential market would be willing to pay.

Chapter 1

1.1 Background

Space tourism is tourism oriented to space and space travel. The beginnings of space tourism started in 1950s when the Hayden Planetarium in New York started booking people for space flights to the Moon. In the 1960s, Pan American Airlines began booking people for the trip to the Moon. The team from Society Expeditions travel agency first developed the term "space tourism" in 1980s. (Berinstein, 2002, pg. 32 and 33) There are currently 4 categories of space tourism: terrestrial space tourism, high altitude, suborbital and orbital.

Orbital space tourism era started with Dennis Tito who became the first space tourist in 2001. Mark Shuttleworth became the second space tourist in the year 2002. (Space Adventures) Greg Olsen became the third space tourist in October 2005. Anousheh Ansari, an American female of Iranian descent, became the fourth space tourist in September 2006. (Wikipedia, 2006) She also became the first "female space tourist" (Pasztor, 2006, p. B.1). Today, orbital space tourism stands for the leisure trips to the International Space Stations (ISS). (Space Adventures)

The 20th century has been marked with great technological achievements in the field of rocketry. These achievements enabled the start of space flights in 1950s (NASA/JPL, *The Solar System*). NASA (National Aeronautics and Space Administration) was created in 1958 (Dobbs and NewQuist, 2001, pg. 43). In 1961, President John F. Kennedy said at the Special Joint Session of the Congress, "I believe this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to Earth. No single space project in this period will be more impressive to mankind or more important in the long-range exploration of space; and none will be so difficult or expensive to accomplish."

In 1969, Neil A. Armstrong and Edwin E. Aldrin Jr. became the first men to visit the Moon (NASA, 2002, Apollo Program). President Kennedy set a goal that was to be accomplished within 10 years. His dream became a reality in 1969.

In 1980s, T.C. Schwartz with Society Expeditions travel agency, started to work on the space tourism development. They started making connections with space travel related to organizations such as the U.S. Department of Transportation. They were also working on a space tourism market study. In order to make space tourism happen, a space vehicle was to be developed. Society Expeditions encouraged the formation of a team that would work on the development of this vehicle. The team consisted of astronauts, rocket scientists and design workers. They were working during the Cold War, so the space vehicle project was stopped (Berinstein, 2002, pg. 33 – 35). These were the beginnings of space tourism.

The beginnings of suborbital tourism are characterized by the X-Prize. The X-Prize is monetary award of 10 million dollars to be given to the first company that builds and launches a suborbital vehicle. (Mills, 2002) The X-Prize Foundation is based in St. Louis with Peter Diamandis as its chairman (Ramirez, 2004, p. 1).

Scaled Composites, Burt Rutan's company, created a suborbital vehicle called SpaceShipOne. Rutan entered the X-Prize competition (Dornheim, 2003, p. 37). Each suborbital ride takes about 25 minutes (Griffith, 2004, p. 20). SpaceShipOne won the X-Prize (renamed the Ansari X-Prize) competition on October 4, 2004 (Murphy, 2006, p. 124).

The present leader in the field of space tourism is the travel agency, Space Adventures, which is the first successful travel agency. It focuses on terrestrial space tourism, high – altitude, suborbital and orbital space tourism. (Space Adventures)

The grounds for the future are being established through the preparations for that future. RIT (Rochester Institute of Technology) is the first university that designed a space tourism course and in fact managed to launch the program to Croatia, Europe (Rochester Institute of Technology). The Space Island Group has designed future space hotels (Berinstein, 2002). Space Adventures created a space tourism orbital program to the International Space Station with the help of scientists, travel experts, former astronauts and engineers (Space Adventures). A number of market studies are being developed in order to determine the interest in space tourism (Berinstein, 2002). However, space tourism research is still in its beginnings. Maximum support of space tourism research is needed in order to get closer to commercial space tourism (Crouch, 2001, p. 215).

1.2 Purpose statement

The purpose of this study is to identify key target markets, their needs and wants in regards to space tourism based on the interviews conducted by RIT Space Tourism Development Class in winter quarter of 2004/2005 under supervision of Professor C.J. Wallington. The data was collected, but never tallied and further explored, in order to set up the ground for continuous further research.

1.3 Problem statement

The economic potential of space tourism is great. However the future of business, investment, market needs and wants, and employment opportunities in this industry are unknown.

1.4 Definitions and terminology

Space tourism

The team from Society Expeditions travel agency first developed the term in 1980s. Space tourism is type of tourism that is oriented on space and space travel (Berinstein, 2002, pgs. 32 & 33). There are 4 types of space tourism: terrestrial space tourism, high altitude, suborbital and orbital.

Terrestrial space tours

Terrestrial Space Tours are tours that happen on the Earth, but that are in some way related to space. These tours are represented by solar eclipse cruises, visits to space museums, planetariums, space camps and launch view areas such as Kenney Space Center (Crouch, 2001).

High – altitude tourism

High – altitude tourism focuses on the experiences that give you the sense of weightlessness. This experience is enabled through aircraft maneuvers (Crouch, 2001). An Ilyushin-76 aircraft can "fly along a parabolic arch so that occupants experience zero G"(Crouch, 2001, p. 214). The MiG-25 can fly at an altitude of 80,000 with pilot and passenger "above 99% of the Earth's atmosphere" (Crouch, 2001, p. 214).

Orbital space tourism

Orbital space tourism that is focused on flights to low earth orbit like the International Space Station (ISS) (situated above the Earth).

Sub-orbital tourism

This type of tourism involves taking the flights to the edge of space (60 miles above Earth), which offers the experience of three to four minutes of weightlessness.

Chapter 2

"For one thing, curiosity seems to be a part of being human. Humans have always wanted to know what was on the other side of the mountain or forest or beyond the sea. They wondered what other places were like." (Bendick, 1982, p. 16)

2.1 Introduction

"Space tourism is the recent phenomenon of space travel by individuals for the purpose of personal pleasure." (Wikipedia, 2006) This chapter provides and overview of space tourism, its current status, space tourism market research studies, and the future of space tourism. The literature review of these subjects provides an introduction into RIT's space tourism market research study that was conducted in 2004.

2.2 Space tourism

"The idea of space tourism is starting to be taken serious by aerospace companies, space agencies and the tourism industry. " (Van Pelt, 2005, p.3)

It is projected that the development of the space industry could boost educational interest in science and math among the youth (Webber, July 2003, p.2). Tourism, in general, has created a lot of job opportunities. Space tourism industry is forecasted to be "the newest segment in this industry" (Webber, July 2003, p.2). The complete development of space tourism is projected to boost space tourism revenue up to $20 billion (Barrett, 1999, p. 4)

Cookson (2006) points out that the U.S. companies, such as Scaled Composites and Space Adventures, "dominate the space tourism field" (p.6). The British company Virgin

Galactic is gaining in popularity, but it relies on getting the suborbital space vehicle from Scaled Composites (Cookson, 2006, p. 6).

The goal of space tourism is to provide space travel to the general public. Therefore public space travel can be defined as travel to space by paying passengers. The space tourist is defined as a person who pays for his own ticket to space. Space tourism today started with wealthy passengers. It is projected that one day it will become available to the general public. (Webber, July 2003, p.2) the future of space travel will involve suborbital flights and orbital flights to Low Earth Orbit (LEO), the International Space Station (ISS) (Webber, July 2003, p.4)

2.21 Space tourism today

Space tourism is tourism that is oriented towards space activities. Space tourism can be categorized into a few distinct categories:

- Terrestrial space tourism
- High-altitude and suborbital space tourism
- Orbital space tourism

(Crouch, 2001, p. 213-215)

2.211 Terrestrial space tourism

Terrestrial space tourism is tourism that occurs at space related locations on Earth. Many early astronomical observations on Earth contribute to its history. The beginnings of terrestrial space tourism can be found in the nautical explorations of Captain James Cook and his "observation of heavenly bodies" (Crouch, 2001, p. 214).

Terrestrial space tourism today includes everything from the most complex journeys around the globe to view phenomena such as eclipses to the simplest of journeys, such as to one's local space museum. Terrestrial space tourists today gather in masses to watch space shuttle take off at the Kennedy Space Center at Cape Canaveral. Tourists also come to visit NASA's Johnston Space Center in Houston. Gagarin Cosmonaut Training Center at Star City in Russia is another example of a terrestrial space tourists' gathering place that includes a tour of Gagarin Cosmonaut Training Center facilities and zero-g simulation experience as a part of their terrestrial tour offer. (Crouch, 2001, p. 214)

"A large number of space exploration artifacts" (Crouch, 2001, p. 214) can be found at the Smithsonian Air and Space Museum in Washington, D.C. The U.S. Space and Rocket Center in Alabama offers an opportunity to visit a space museum and their space camp. The idea of space camps has taken off across the U.S. borders to other countries of the world as well. A space-based theme park is another idea that is to be implemented globally. (Crouch, 2001, p. 214)

Space Adventures, a space travel agency that offers space related travel experiences, offers, for example, RMS Titanic tours. These tours involve a diving experience to the remains of the ship Titanic. (Space Adventures, 2006) These tours are examples of terrestrial space tours. Further information on Space Adventures and their recent developments (at time of writing) are discussed in the section on space travel agencies today.

Crouch states, "Terrestrial space tourism is likely to continue to grow in these directions satisfying at least some of the dreams of the many people fascinated by space." (p. 214).

2.212 High-altitude tourism and suborbital tourism

High–altitude tourism is tourism that gives an opportunity to the general public to experience weightlessness as the astronauts that work and live in space would experience. Fighter jets such as MIG 25 or parabolic craft Ilyushin-76 "fly along a parabolic arch so that occupants experience zero G"(Crouch, 2001, p. 214) at an altitude of 80,000 with pilot and passenger "above 99% of the Earth's atmosphere" (Crouch, 2001, p. 214)

Suborbital tourism is tourism that gives an opportunity to people to travel to an altitude of 62 miles (100 km) or more (Crouch, 2001, p. 214). Wikipedia (2006), the online encyclopedia, defines a suborbital flight as "a spaceflight that does not leave the vicinity of Earth, and where the spacecraft does not enter orbit. For example, any object that reaches 100 km above sea level, and then falls back to Earth, is considered a sub-orbital spaceflight".

The opportunity for suborbital tourism to become a reality was realized on October 4, 2004 when a newly designed suborbital vehicle SpaceShipOne won the Ansari X-Prize competition. The event of winning Ansari X-Prize was followed with Sir Richard Branson and his company Virgin Group deciding to start Virgin Galactic, a company that would organize suborbital flights. Richard Branson also started a plan for Virgin Galactic to create and sell suborbital flights on SpaceShipTwo in the near future. (Wikipedia, 2006)

Benson Space Co., with Jim Benson as its founder, is currently working on development of his "Dream Chaser" (Balint, 2006, p.1) a space suborbital vehicle that could accommodate three passengers. Jim Benson is known for being the former head of SpaceDev, a rocket company that provided a rocket engine for SpaceShipOne (Balint, 2006, p. 1). Benson's future goal is "to launch routine private space travel as early as 2009" (Fikes, 2006, p.1) and in that way successfully compete with its competitor, Virgin Galactic.

Some researches see in suborbital flights a great opportunity for opening it to "the intercontinental transport market" (Coppinger, Jul 18 – Jul 24, 2006, p. 43). Virgin Galactic and its most current plans and events (as time of writing) are explained in the section of paper under space travel agencies.

2.213 Ansari X-Prize

Suborbital vehicles were in the process of development until 2004 (Wikipedia, 2006). X-Prize (called Ansari X-Prize today) of U.S. $10 million was formed in 1996 as a way of encouraging a competition among private companies and teams for building the best possible suborbital vehicle (Crouch, 2001, p. 214).

The Ansari X-Prize prize was to be given to a company that can build a spacecraft that would have an ability to go to space every two weeks and that could take three people on board (Mills, 2002, para. 4). Peter Diamandis founded the X-Prize (Ansari X-Prize). He is the chairman of the X-Prize Foundation. (Beirne, 2002, p. 21) The name of the X-Prize was changed to Ansari X-Prize due to "a multimillion dollar donation from the Ansari family" (Murphy, 2006, p. 124).

The idea of starting the X-Prize Foundation started with Peter Diamandis reading a book by Charles Lindberg on The Spirits of St. Louis. The book told the story of the Orteig Prize of $25,000 which was given "to the first nonstop flight from New York to Paris" (Murphy, 2006, p. 124). The Orteig Prize aided in the development of the aviation industry. This story gave Peter Diamandis the idea of starting his own X-Prize that would spark the development of space tourism by stimulating research and development in this arena. The Ansari X-Prize encourages capital investments. (Murphy, 2006, p. 124) Ansari X-Prize Foundation "operates entirely on donations" (Hayward, 2005, p. 17).

The Ansari X-Prize Foundation wanted to open the competition to the public with the purpose "to allow users worldwide to witness the historic firstever civilian launch by the first team's craft SpaceShipOne on September 29, 2004" (Hayward, 2005, p. 17). The Ansari X-Prize Foundation hired Mirror Image, a web company, to "Webcast SpaceShipOne's private space flight" (Hayward, 2005, p. 17). The Ansari X-Prize "webcast" (Hayward, 2005, p.17) was viewed by 1,200 people in the first minute. The video was seen in Europe, North America and Asia. Forty-one percent of the viewers watched the online video for over an hour. (Hayward, 2005, p.17)

SpaceShipOne had its second Ansari X-Prize flight on October 4, 2004. Mirror Image showed the online video of the launch. The public video viewing of this launch resulted in the total of 621,901 hits. Online webcasting of the launch contributed to the online donations to the Ansari X-Prize. (Hayward, 2005, p. 17)

The Ansari X-Prize, an eight-year contest to promote development of space tourism, finished with SpaceShipOne winning their $10 million dollar award (Griffiths, 2004, p. 12) The Ansari X-Prize brought a lot of public attention and media exposure. The Ansari X-Prize Foundation is planning to start new X-Prize Cups in New Mexico with the focus on the Rocket Racing League and their racing competition. The Foundation is hoping to build a type of NASCAR event, but with rockets competing instead of cars. (Murphy, 2006, p. 126)

The Ansari X-Prize Foundation is also looking into starting new prizes that would also be worth millions and that could promote developments in the area of education, genomics and nanotechnology. (Murphy, 2006, p. 125)

2.2131 Scaled Composites and Burt Rutan

Burt Rutan, an aircraft designer, is famous for designing the Voyager airplane that today is a museum artifact at the Smithsonian Institution's National Air & Space Museum. Voyager was famous in 1986 for nonstop flying around the globe. (Lunsford, 2004, p. B1) Voyager set the world record of flying for 24,987 miles without stopping (Coppinger, Aug 2 – Aug 8, 2005, p. 5).

Burt Rutan founded Scaled Composites in California. He designed SpaceShipOne, the suborbital plane that was entered in the X-Prize (renamed the Ansari X-Prize). (Van Pelt, 2005, p32) Paul Allen, a cofounder of Microsoft owns the technology that was used to build SpaceShipOne (Coppinger, Aug 2 – Aug 8, 2005, p. 5).

After SpaceShipOne won the Ansari X-Prize, Burt Rutan announced that the company envisions "building a larger craft suitable for passengers" (Griffiths, 2004, p. 12). Winning the Ansari X-Prize was followed by the company signing a contract with Virgin Galactic for building even larger suborbital vehicles. This contract is estimated to be worth $120 million. (Murphy, 2006, p. 124) Scaled Composites is planning to develop SpaceShipTwo (SS2) and White Knight Two (WK2), the carrier for SS2 (Coppinger, 2005, p. 5).

2.2132 SpaceShipOne

Darla Martin Tucker (2004) states, "SpaceShipOne become the first privately developed, manned spacecraft to leave earth's atmosphere" (p. 1). SpaceShipOne is "a three-seat mini spaceplane" (Van Pelt, 2005, p31). The idea of developing SpaceShipOne was born in 1996. Paul Allen, rich businessman and a cofounder of Microsoft, gave Scaled Composites a $30 million grant to fund a development of SpaceShipOne. (Van Pelt, 2005, p.32) The plane was

presented to the public on June 21, 2004 when it was taken for a test drive (Tucker, 2004, p. 1). This vehicle can fly to 328,000 ft altitude with three people on board (Dornheim, 2003, p. 37). Michael Melvill was a test pilot for this flight (*WorldSources Online*, 2004)

Ian Murphy (2006) describes SpaceShipOne as the suborbital vehicle that "sits beneath White Knight, the aircraft that carries it aloft for launching" (p. 124).

In regards to SpaceShipOne and the Ansari X-Prize, "Allen's and Rutan's objective is not merely to win; primarily, they want to jump-start a renaissance in the human spaceflight industry" (Van Pelt, 2005, p. 32).

Brian Binnie was a SpaceshipOne's test pilot for Ansari X-Prize competition and he enabled Ansari X-Prize winning for Burt Rutan and his SpaceShipOne (Clash, 2006, p. 119).

2.214 Orbital tourism

"Many 'ordinary' people are fascinated by space but had no hope of ever going there themselves...until now." (Van Pelt, 2005, p.3)

Russian Soyuz takes space tourist to Low Earth Orbit (LEO) at the International Space Station (ISS) at the estimated price of $20 million. The flight to ISS is projected to last about ninety minutes. (Webber, July 2003, p.4)

Orbital space tourism is tourism that involves flights to the International Space Station (ISS). The orbital space tourism era started when Dennis Tito paid $20 million to visit the International Space Station (ISS) in 2001. (Crouch, 2001, p. 215) A Russian space vehicle took him to the International Space Station. (Griffith, 2004, p. 20)

Tito's endeavor was followed by Mark Shuttleworth, a rich South African businessman, who became the second space tourist (Crouch, 2001, p. 215). Gregory Olsen, a U.S.

entrepreneur, became a third space tourist in October 2005. The fourth space tourist is Anousheh Ansari, an American female of Iranian decent, who traveled to space in September 2006. (Wikipedia, 2006) She became the first "female space tourist" (Pasztor, 2006, p. B.1). Ansari's family is one of the sponsors of the Ansari X-Prize (Wikipedia, 2006).

Future travels to Low Earth Orbit could include more than the International Space Station (ISS). A spacehab-model could be another Low Earth Orbit (LEO) destination that is planned to be developed in the next twenty years. (Webber, July 2003, p.4)

2.215 Space travel agencies

2.2151 Space Adventures

Space Adventures is a space travel agency that offers space-related travel experiences (Space Adventures). Space Adventures is based in Arlington, Virginia. The company was founded in 1998 (Lunsford, 2004, p. B1). Crouch (2001) gives an overview of terrestrial space tours that are conducted or were conducted by Space Adventures (p. 214).

Space Adventures started taking early reservations for suborbital ride before the Ansari X-Prize was won. More than hundred people made reservations with this agency. Space Adventures received up to $98,000 in deposits for the future suborbital ride. (Lunsford, 2004, p. B1)

In 2006, Space Adventures announced their plans for global expansion of their business. This space travel agency is looking at Singapore and Ras Al-Khaimah in the United Arab Emirates as potential new commercial spaceports. The cost to build this spaceport could come up to $265 million. (Cookson, 2006, p. 6)

2.2152 Virgin Galactic

Companies are working on development of suborbital flights. Cookson (2006) states, "Best known – and likely to carry the first commercial passengers – is Sir Richard Branson's Virgin Galactic, which aims to build a commercial fleet of five space-planes" (p. 6). Virgin Galactic is planning to offer suborbital flights by 2008 (Coppinger, Aug 2 – Aug 8, 2005, p. 5). They are investing $220 million in making commercial suborbital flights happen (Cookson, 2006, p. 6). The company formed a partnership with Scaled Composites. Virgin Galactic signed a contract with Scaled Composites in which they locked in the order for future SpaceShipTwo suborbital vehicles and their White Knight Two carriers. (Coppinger, Aug 2 – Aug 8, 2005, p. 5) SpaceShipTwo is expected to be in the air for fifteen minutes, during which passengers will be able to experience weightlessness in a cabin made to allow movement (Orange, 2006, p. 1).

In the future, if SpaceShipTwo flights become successful, Virgin Galactic will continue their cooperation with Scaled Composites and the will support the development of orbital vehicle called SpaceShipThree (Coppinger, Aug 23 – Aug 29, p. 25). Virgin Galactic is planning to work on SpaceShipThree starting by 2010. Virgin Galactic received $13.1 million as deposits for future suborbital flight on SpaceShipTwo. (Orange, 2006, p. 1)

Mr. Whitehorn of Virgin Galactic states, "All our marker research shows that weightlessness will be an essential part of the experience" (Cookson, 2006, p. 6).

2.2153 Zero-G Corporation

Zero Gravity Corporation (ZERO-G) is a company oriented on space tourism. It is situated in Fort Lauderdale, Florida. The company offers weightless flights on Boeing 727-200 aircraft. (Zero Gravity Corporation, 2006)

"ZERO-G is the only company approved by the FAA to conduct weightless flights for the public." (Zero Gravity Corporation, 2006). NASA uses the same kind of weightless flights to train their astronauts (Zero Gravity Corporation, 2006). Witze states, "Zero-G's venture is the first such experience available publicly in the United States; other companies offer similar flights in Russia." (Witze, 2004, p. 1) ZERO-G offers these flights for the price of $2,950. These zero-gravity flights last for up to ninety minutes. They enable the passenger to experience the sense of weightlessness.

Jakobson points out that Zero Gravity Corporation offers some of "the newest, and in some ways most extreme of a new breed of adventure experiences" (Jakobson, 2005, p. 14).

2.216 Space tourism market research studies

Crouch states, "the success of space tourism development will depend on extensive and rigorous research of the space tourism market" (Crouch, 2001, p. 219). "Although a number of market studies have been conducted to date, these have barely scratched the surface in terms of the needs that lie ahead." (Crouch, 2001, p. 219)

This section of the paper provides examples of space tourism market research studies that have been conducted up to now (as time of writing).

2.2161 Market surveys by Dr. Patrick Collins

Space tourism market research surveys were conducted in 1993 and 1995 by Dr. Patrick Collins. In 1993 Dr. Collins came to Tokyo, Japan to work for the National Aerospace Laboratory, where he conducted his market research survey. (Berinstein, 2002, p. 96) Collins

surveyed 3,030 people (Collins, et al, 1995, p. 1). He used a face-to-face method to conduct his survey. (Berinstein, 2002, p. 423)

The survey revealed that seventy to eighty percent of respondents would like to go to space at least once in their lifetime. Seventy percent of respondents would "pay up to three months salary" (Berinstein, 2002, p. 423) to go to space.

In 1995, Collins conducted his second survey in the U.S. and Canada. He surveyed 1000 people by using phone interviews. The survey revealed that sixty-percent of people would like to go to space; over forty-five percent would pay their three month's salary for a space trip; over eighteen percent of respondents would pay up to six months salary for a space trip. (Berinstein, 2002, p. 423 and 424)

2.2162 Berlin airports' survey

In 1994 a space tourism market survey was implemented at two Berlin airports in Germany. This survey used the same set of questions as Dr. Patrick Collins did in his survey. In contrast to the Japanese study, the Berlin survey revealed that forty-three percent of respondents were interested in flying to space. (Berinstein, 2002, p. 424)

2.2163 NASA / STA study

NASA and the Space Transportation Association (STA) "entered into a Space Act Agreement to conduct a study of space tourism" (Stone, 1996, p.4). NASA and the STA conducted a market research together in 1996 and in 1997 (Berinstein, 2002, p.38). Together they formed The National General Public Space Travel and Tourism Study Steering Group (O'Neil, et al, 1998, p. 5). The organizations discussed life and work in space, safety issues,

business, and possible technological requirements for space tourism development (Stone, 1996, p.4). Participants of this study include the following:

Aerospace Entrepreneurs
Aerospace Technical Experts
Travel and Tourism Business Leaders
Hotel Architect, Airline and Business Leaders
Insurance Interests
Space Health and Medical Experts

(O'Neil, et al, 1998, p. 6)

Yankelowich Partners, Yesawich, Pepperdine and Brown, consulting companies conducted a space tourism market survey on behalf of NASA and the STA. One-thousand-and-five-hundred American families were surveyed. The survey results revealed that thirty-four respondents would like to take "two-week vacation in the Space Shuttle in the future" (Crouch, 2001, p. 216). Forty-two percent of the respondents would like to "travel aboard a space cruise vessel offering accommodations and entertainment programs similar to an ocean-going cruise ship" (Crouch, 2001, p.216). Seven-and-a-half percent of the respondents would pay up to $100,000 (Crouch, 2001, p. 216).

NASA/ STA study revealed that the development of general public space travel would need development of safe and reliable space flight and at an acceptable cost (O'Neil, et al, 1998, p.6). The study projects that high altitude flights and suborbital flights will become popular in the future. Orbital trips to Low Earth Orbit (LEO) destination will include longer space stays in the future (O'Neil, et al, 1998, p. 7). NASA/ STA study suggests that space tourism could become profitable in the future (The Economist, 2002, para. 4)

2.2164 The U.K. survey

Olly Barrett conducted a space tourism market research study in the United Kingdom in 1998. He used a face-to-face survey methodology. (Berinstein, 2002, p. 426) Barrett used the same set of questions as Dr. Patrick Collins did in his survey. Seventy-two people were surveyed. (Crouch, 2001, p. 216)

The survey results reveal that over seventy percent of the respondents "rated space development as between 'important' and 'most important' to mankind" (Barrett, 1999, p. 12). The survey results also revealed that 34.7% of respondents were interested in space travel and 23.6% would maybe want to go to space (Berinstein, 2002, p. 427). The results also revealed that over 11% of people would be willing to pay the amount of one year's salary for space travel (Barrett, 1999, p. 14).

A Gallup poll was conducted in the United Kingdom in 1997. The survey indicated that two-thirds of all U.K. residents would be interested in traveling to space. (Barrett, 1999, p. 12) More than two-thirds of all the interviewees had prior knowledge of space tourism before being interviewed (Barrett, 1999, p. 13).

In 1998, Barclays Bank conducted another U.K. survey. The survey showed that 70% of all the interviewees thought that space travel would be available to the general public within ten years. More than one-third of all the interviewees thought that space tourism development would happen within the next twenty years. Over forty-five percent of all the respondents believed that space tourism development would happen within the next fifteen years. (Barrett, 1999, p. 13)

2.2165 Survey for the Bigelow companies

In 1999, the space tourism market research survey was conducted to discover what the interest and "demand for, a six-day journey from the Earth to the Moon and back on a luxurious spacecruiseship for the Bigelow companies" (Crouch, 2001, p. 4). The survey results revealed that 38% of all the interviewees would give up their one year salary for the space travel experience (Crouch, 2001, p. 4).

2.2166 Survey at Ecole Hoteliere de Lausanne in Switzerland

The results from the space tourism study at Ecole Hoteliere de Lausanne in Switzerland provided some very encouraging information about the future of space tourism. More than three-fourths of the respondents were aware of the concept of space tourism and even more encouraging for the potential market is that sixty-seven percent of the respondents would be interested in a trip to space. The majority of the respondents who were interested in going to space were in their late teenage years ranging up to their mid-twenties. (Vulliamy, 2002, p. 53)

In addition, the study gathered more market information by the elucidating the 4 most interesting space activities from these respondents' surveys: viewing earth, walking in space, floating around and star gazing. Interestingly, playing sports in space ranked last on the respondents' list. (Vulliamy, 2002, p.53)

The identification of these key market factors in this survey support the commercial development of space tourism. This study points out that the market could potentially capitalize on in the short-term.

2.2167 Futron study

Futron is an aerospace forecasting company. They have conducted a space tourism market survey in the US. The survey revealed that 13,000 people in the US would spend $100,000 to go to space. If the price of a spaceflight is lowered to $25,000 in the future, the number of people willing to go to space is expected to drastically rise from 13,000 to a much higher number of people willing to go to space. This rise in public space travel is expected in about ten years. (Griffith, 2004, p. 20)

After their market study was published, Futron Corporation decided to redo their survey in order "to account for post-X-Prize developments, and has found the market actually contracts somewhat" (Aerospace Daily & Defense Report, 2006, p. 4).

Futron released a new market survey in 2006 that shows that space tourism will experience huge development after 2008 with projected four thousand of suborbital passengers by the year 2016. They are also projecting ten thousand suborbital tourists by the year 2020. (Cookson, 2006, p. 6)

2.21671 ASCENT study

The ASCENT study was sponsored by NASA (Webber, July 2003, p. 1). The ASCENT study analyzed world demand for launch vehicles as well as analyzing the impact of space activities on the world economy (Webber, January 2003, p. 1).

The study utilized data generated from the Futron/ Zogby market research study. Rich individuals were interviewed to collect market data for this study. The results encompass future suborbital and orbital flights. The study is focused on the first key twenty years of space travel. The study also looked at the possible future development of space tourism for the next eighty

years. Furthermore, the study examined the potential of future space hotels, space outposts, and lunar tourist trips. (Webber, July 2003, p. 1)

2.2168 Japanese Rocket Society (JRS) study/ Japanese poll

Japanese Rocket Society had their Annual General Meeting on April 4, 1993. They conducted and discussed the space tourism market research in Japan. (Stone, 1996, p. 4) Space tourism market survey was done in Japan in 1993 (Vulliamy, 2002, p. 53). Three thousand and thirty people were surveyed in this study (Stone, 1996, p. 4). Dr. Patrick Collins collaborated with National Aerospace Laboratory in Japan to conduct this study (Collins, et al, 1995, p. 1). Over eighty percent of people under the age of forty were interested in visiting space sometime in their life. (Stone, 1996, p. 4) The survey also revealed that seventy percent of Japanese (under the age of sixty) would like to visit space sometime during their life. (Vulliamy, 2002, p. 53)

Barrett describes the Japan survey as "the first major space tourism demand survey" (Barrett, 1999, p. 4).

2.2169 Space Adventures / Harris Interactive study

Space Adventures funded a space tourism market survey that was conduct by Harris Interactive in the U.S. and Canada in 2000. The result results revealed the following:

86% - space tourism interest
51% - interested in becoming a space traveler
19% - interest in "space-related experiences"
"Nearly 40% would pay 3-5 years income for a space trip"

(Space Adventures)

2.2170 Kelly Space and Technology market demand

Kelly Space and Technology, Inc. analyzed a space tourism market demand. Harris Interactive's survey was the basis for Kelly Space and Technology's analysis.

Harris Interactive surveyed two-thousand-and-twenty-two respondents. The survey revealed that there could be up to seven thousand passengers per year for suborbital flights by the year 2030. Furthermore, there could be up to eighteen hundred passengers per year for orbital space flights by the year 2030. Crouch reports, "As the methodological basis for this study is not reported, no assessment of its reliability and validity is possible" (Crouch, 2001, p. 216 and 217).

2.218 Major obstacles to space tourism

"The single greatest barrier has always been the price" (*The Economist*, 2002, para. 5). There is a need for making spaceflights safe and affordable. This would be an important step in making them available to general public. Michael Van Pelt identifies money and safety as two main problems that "stand out in our way to large-scale, economically viable space tourism" (2005, p. 203).

Launching a rocket into space is an expensive project that requires quality equipment that also costs a lot of money. Van Pelt states, "Another reason for high cost is that human spaceflight has always been exclusively based on government support and on hardware and procedures derived from military programs. These organizations do not tend to make anything efficient and inexpensive." (2005, p. 203) Van Pelt also outlines the importance of making a spaceflight a reliable and safe way of flying for the future of space tourism. (2005, p. 203) "Mass space tourism will probably require a safety level close to that of today's airliners, otherwise the market will be too small." (Van Pelt, 2005, p. 38)

2.219 The future of space tourism

Vulliamy states, "Those who are up to date on space tourism think it is not only viable, but it will happen soon – within the next 15 years" (Vulliamy, 2002, p. 53).

Burt Rutan projects that the price for a suborbital flight will be "only a few thousand dollars" (Van Pelt, 2005, p. 32) in 10 to 15 years. When thinking about the future of space tourism in the next ten years, on the other hand, a test pilot for SpaceShipOne, Brian Binnie, points out that that "caution" (Clash, 2006, p. 119) is the key word. "So progress will be conservatively paced" (Clash, 2006, p. 119). Geoff Sheering, a part of the Canadian Arrow team who lost the Ansari X-Prize changed their name to Planetspace. They decided to continue their work and make the planes that could fly to space. In several years they are planning to have vehicles ready to carry out passengers into a space adventure. (Murphy, 2006, p. 125)

The Mojave Airport plans to become "the first certified inland 'spaceport'. If it succeeds, space tourists may train and await their launch at specially built facilities." (Griffith, 2004, p. 20)

NASA plans to stop using space shuttles by the year 2010 when the new vehicle will take over NASA's operations. NASA's new plane will either be a reusable space vehicles or "an expandable capsule-type spacecraft" (Van Pelt, 2005, p. 35). NASA plans to definitely have reusable space vehicles available by the year 2020. Today (as time of writing) the cost per space rocket launch is $10,000 to $20,000 per kilogram payload. NASA plans to reduce the cost per launch to $6,000 per kilogram payload by the year 2020. The space shuttle today has one in two hundred and fifty chance of failure, while the new reusable vehicle is projected to be much safer than the space shuttle (twenty times safer). (Van Pelt, 2005, p. 36)

NASA plans to reduce the cost of launch to $50 per kilogram payload by the year 2040. The year 2040 will bring new "airplane-like" (Van Pelt, 2005, p. 36) vehicles. (Van Pelt, 2005, p. 36)

Japanese Rocket Society is working on the development of Kankoh-maru, "a fully reusable single-stage spacecraft. It is not a spaceplane as those envisioned by NASA, but a giant reusable rocket without wings, that would take off and land vertically." (Van Pelt, 2005, p. 36) This vehicle is envisioned to be as a space tourism vehicle that might carry 50 passengers at a time. The vehicle will weigh 1,213,000 pounds. (Van Pelt, 2005, p.36)

Space hotels are also being envisioned for the future of space tourism. These new hotels will have specialized fire detection systems. Smoking is suspected to be forbidden in these future space hotels. Space Island Group, the Shimizu Corporation, the Japanese company and DASA, the German Company have envisioned the creation of orbital space hotels. (Van Pelt, 2005, p. 146)

The Shimizu Corporation envisioned an orbital space hotel in a form of a wheel (463 foot in diameter) that could accommodate 64 space tourists. Each of the space tourists would get his/her own room called "habitation module" (Van Pelt, 2005, p. 146). The hotel's rotation would enable a gravity force that would be similar to Earth's gravity force (similarity is 70%), so the space tourist would be able to walk around the hotel (station) just as he//she could walk on Earth. (Van Pelt, 2005, p. 146)

German company DASA envisioned the orbital space hotel that is similar to Shimizu's space hotel, but the hotel would be much larger. This space hotel could accommodate up to 240 space tourists. (Van Pelt, 2005, p. 147)

Space hotels are envisioned to be operational by 2040 (Van Pelt, 2005, p. 147). These hotels will have observatories from which anyone could view the stars and Earth. The hotels might also have microgravity swimming pools and weightless sports centers. (Van Pelt, 2005, p. 149)

Patrick Collins, an economist and a believer in space tourism, worked with Japanese firm Hazama Corporation on the creation of a microgravity gymnasium and a space stadium. The future of space tourism could involve these microgravity gymnasiums and stadiums as a part of an orbital space hotel. (Van Pelt, 2005, p. 150)

"Space is a place not only of high risk, but unparalleled opportunity *if humankind can adapt to cooperative actions there*." (Harris, 1994, p. 75)

2.220 Conclusion

Chapter 2 has introduced the reader to the concepts and current state of the space tourism industry. It explained the main ideas behind key drivers of space tourism such as, the Ansari X-Prize, SpaceShipOne, and Virgin Galactic.

The major obstacles to space tourism development have been identified. Future possibilities and plans for space tourism have been discussed. The literature review of these subjects provides leverage and introduction into RIT's space tourism market research study and its analysis.

Chapter 3

3.1 Introduction

The focus of the research is to explore key target markets in the space tourism arena. The chapter explains the purpose of the study, design of investigation, survey and interview instrument development, data collection, limitations and bias.

3.2 Purpose

The purpose of this study is to identify key target markets and their needs and wants in regards to space tourism based on the interviews conducted by the RIT Space Tourism Development class in the winter quarter of 2004/2005 under supervision of Professor C.J Wallington. The data was collected, but never analyzed and further explored. Current analysis will set up the groundwork for continuous, further research.

3.3 Design of investigation

The study is a continuation of a project that was started by RIT Professor C.J. Wallington and students in Space Tourism Development course (winter 2004/2005). Professor Wallington developed a detailed survey of twenty-one (21) questions with the goal to have his students conduct a market survey. They were instructed to find at least eight people over the age of eighteen and interview them. The professor provided the students with space tourism market survey instructions (See Appendix B).

The target markets for those interviews were mostly comprised of acquaintances (including family) of RIT students who took the Space Tourism course. Professor Wallington was interested in finding out if the students' families, friends and acquaintances would want to take a space trip. The results of this survey were never tallied and analyzed. There is a need for analysis of this data and further expansion of the original research.

The preliminary results of the survey were analyzed, then cross-tabulated. The relationship (and if there is a relationship) between the sample's demographics and the answers to questions about zero gravity flights and suborbital flights were explored.

The reason for looking at the relationship between demographics and zero gravity flights and suborbital flights is that these type of flights have a great chance of being completed within next few years. The companies that are involved in these types of activities need as much information about target markets and public opinions as possible and as soon as possible.

When exactly is the space habitat going to happen is still unknown, so the information we currently have is not needed immediately. It may be a long time from now. It might not even be needed for a habitat portion by the time the space habitat goes into the effect. This is why the habitat portion of the survey was excluded from crosstabulating the results with demographics portion.

The information gathered from the interviews was used to create questions for in-depth interviews with the experts in the space tourism field. Space tourism experts were used to discover further revelations on the subject of space tourism market needs and wants.

The existing interviews provide an opportunity for future students to create a survey for subsequent experiments in the area of the space tourism market based on the current happenings of their time.

3.4 Survey instrument development

The survey consists of four sections: demographic information, zero gravity, suborbital flights, and low earth orbit (LEO) habitats. Professor Wallington developed the questions based on his knowledge of the space tourism field. The survey has twenty-one questions (See Appendix A). The answers to the survey questions can help in identifying key target markets and their needs and wants in regards to space tourism.

Demographic questions include the name of the person, town/state, gender, age group, education level and occupation. The goal was to find a correlation between the sample's demographics and their answers to questions about zero-gravity flights, suborbital flights and the space habitat.

The interviewees were instructed that providing their name and where they live was an optional part of the survey. They were advised that their names wouldn't be used in the survey analysis, but the names could help the interviewers in keeping their score and organization of interviews easier, which is the reason why they were introduced.

The respondents were advised that the town/state question was optional as well as providing their name. The town/state question was introduced in the survey because, even though it is not necessary, it would be interesting to see which geographic areas were covered during this market survey.

The gender question was introduced, which provided an opportunity to explore if men and women had different views on zero-gravity, suborbital flights and the risk involved with those travels. The age group was recorded in this survey and thanks to that information, the relationship between age group, views on zero-gravity, suborbital flights, their willingness to experience it, and the risk associated with these flights could be examined.

The level of education was also recorded. This information helped in researching the relationship (if any) between education level and interest in zero-gravity and suborbital flights. The respondents were also asked to reveal their occupation since the survey did not include a question regarding the interviewee's salary. Salary is highly personal information and the purpose was to avoid the interviewee being uncomfortable with the survey.

Zero-gravity questions reveal the respondents' knowledge of zero-gravity flights, willingness to take that type of a ride and pay for it. The goal of this section was to explore the interviewee's interest in zero-gravity flights. These questions also provided a chance to further explore answers to these questions and sample demographics.

Suborbital questions show the interviewees' knowledge of suborbital flights, their willingness to take that ride and pay for it. The interviewees also revealed if the crowded quarters in the suborbital plane made a difference in their decision to take a ride or not. The goal of this section was to explore the interviewee's interest in suborbital flights.

The habitat questions captured people's knowledge of space habitat, space tourists, their interest in visiting the habitat, their considerations about the living accommodations in space, their interest in space activities and willingness to pay. This section of the survey also shows people's estimation of when they think a space habitat and commercial space tourism in general would happen.

3.5 Data collection

The survey was conducted in December of 2004 and January of 2005. The phone and in – person structured interviews were used. The interviewers (the students) asked the interviewees a series of questions and the interviewers recorded their answers. There were two hundred and thirty-one (231) respondents.

3.6 Limitations and bias

The market survey involved RIT students and their friends, families and acquaintances, which means that there is a certain bias in regards to the sample that was used for the survey. The students who interviewed their subjects were not trained interviewers. They were not familiar with different interviewing techniques, so there could be some inconsistency in the answers to the survey questions. Their source of interview information pertains to market survey directions (See Appendix B) and the survey (See Appendix A).

The students were asked not to force answers if the interviewee was not comfortable with answering the question. The survey did not include any question regarding the interviewee's salary because it was highly personal information and the purpose was to avoid the interviewee being uncomfortable with the survey.

The survey revealed the interviewee's occupation, which gives an idea of his or her social or work status. Interviews were based on the assumption that majority of RIT students come from middle class families. The interview subjects were not part of a random sample, but they were the interviewer's family members, friends or acquaintances.

Chapter 4

Analysis

4.1 Introduction

This chapter introduces the results of the market survey. It analyzes demographic information of the sample, their answers to zero-gravity questions, suborbital and habitat questions. Based on the survey results, a new set of interview questions was constructed for space tourism experts. These experts gave more insight into potential space tourism key target markets and their needs and wants. The original survey results also helped in designing a market survey for future experiments in the area of the space tourism market.

4.2 Demographics

The demographic questions revealed information on gender distribution, the age group they belong to and the educational level of the interviewees. The questions included the name of the interviewee and the town/state that the interviewee was from.

4.3 Gender distribution

The total number of people interviewed was two hundred and thirty-one. The interviewee who was sixteen years old was not included in the final count for this question and all other questions, so the total number of surveys that were considered in the final count is two hundred and thirty surveys.

Out of two hundred and thirty people interviewed, one hundred and fourteen people were males and one hundred and sixteen were females (See Table 1).

Table 1 Male-female participation

Number of males/females participated in the survey	N	%
Male	114	49.56
Female	116	50.44
Total	230	100

4.4 Age distribution of the interviewees

The interviewers were instructed to speak to people that fall in the age range of eighteen to over sixty. Out of two hundred and thirty-one surveys, three surveys were not included in the final count for the age range portion of the survey results; two interviewees didn't answer the age question and one interviewee was sixteen years old, so he didn't fall in the instructed age range of eighteen to over sixty for this survey (See Table 2).

Out of two hundred and twenty-eight interviewees, eighty-eight people belong to age group of eighteen to thirty. This was the largest group (38.60 % out of the total number of interviewees). The second largest group was in the age range of thirty-one to forty-five with sixty-nine interviewees (30.26 %). There were forty-nine people in the age range of forty-six to sixty (21.49 %). The smallest age range group has twenty-two people in the over sixty years old (See Table 2).

Table 2 Frequency distribution of the age in reference to the gender at the time of filling out the survey

Age of Interviewees/gender		Percentage by age group	Male		Female	
	N	%	N	%	N	%
18-30	88	38.60	47	20.61	41	17.99
31-45	69	30.26	35	15.35	34	14.91
46-60	49	21.49	22	9.65	27	11.84
Over 60	22	9.65	9	3.95	13	5.70
Total	228	100	113	49.60	115	50.44

The male group had the following age distribution: the majority of interviewees, forty - seven people (20.61 % out of the total number of interviewees), were in the age group of eighteen to thirty; thirty-five people (15.35 %) were in the age group of thirty-one to forty-five; twenty- two people belonged to the age group of forty-six to sixty. There were only nine interviewees over sixty years of age.

The distribution of age in the female group was the following: the majority, consisting of forty-two females were in the age group of eighteen to thirty-one; thirty-four people were in the age group of thirty-one to forty-five; twenty-six people belonged to the age group of forty-six to sixty and there were thirteen interviewees that were over sixty.

4.5 Level of education distribution of the interviewees

Five levels of education were introduced in the survey: less than high school, high school, some college, bachelor's and graduate degree. The four interviewees who did not answer the "educational level" question and the interviewee that was sixteen years old, were not included in the final count for this question. The largest group consists of sixty-eight interviewees with a bachelor's degree. There were fifty-two people with a high school diploma and fifty-two with some college experience. Forty-nine people had a graduate degree and only five people had less than a high school education level (See Table 3).

Table 3 – Frequency distribution – education levels / gender

Level of education/gender		Percentage by education level	Male		Female	
	N	%	N	%	N	%
Less than high school	5	2.21	1	0.44	4	1.77
High school	52	23.01	26	11.505	26	11.505
Some college	52	23.01	30	13.27	22	9.74
Bachelor's	68	30.09	32	14.16	36	15.93
Graduate	49	21.68	24	10.62	25	11.06
Total	226	100	113	50	113	50

The distribution of education in the male group was the following: the majority of the thirty-two interviewees had a bachelor's degree; thirty people had some college experience; twenty-six people had a high school diploma and twenty-four people had a graduate degree. There was one male with less than a high school diploma.

The distribution of education in the female group was the following: the majority of thirty-six interviewees had a bachelor's degree; twenty-six people had a high school diploma; twenty-five people had a graduate degree; twenty-two people had some college experience and only four people had less than a high school diploma.

4.6 Zero-gravity questions in relation to demographic information (gender / age group and educational level) of the interviewees

The goal of this section was to explore the relationship between the interviewees' demographics and their answers to questions about zero-gravity flights. The zero-gravity questions reveal information on the number of people who have heard of zero-gravity rides, their interest in taking such a ride and the reasons behind why they would be reluctant to take this ride or why they are sure they would not want to take it at all. The respondents were also asked to give the price that they would be willing to pay to take a zero-gravity ride, assuming that they were willing to take it in the first place.

The zero-gravity questions encompass the following survey questions:

Question number 7: Have you heard of the zero-gravity, weightlessness flights -conducted by NASA or others? Yes No

Question number 8: Cost aside would you take a ride like that? Yes Maybe No

Question number 9: Assuming that you were willing to go, what would you pay (exclusive of cost like travel to the site and accommodations) for a zero-gravity ride lasting at least an hour and / or having a dozen short weightless periods? (Refer to section 5.1 for cost details)

These questions were cross-referenced with the "gender distribution" question (question number three), "age group" question (question number four) and "education level" question (question number five). (See Appendix A-original questions)

4.61 Knowledge of zero-gravity flights in relation to gender

The frequency distribution table, number 4, explores how many male and female interviewees have heard of zero-gravity flights. The answers of two hundred and thirty respondents were analyzed; the interviewee who was sixteen years old was not included in the final count for this question.

Out of two hundred and thirty interviewees, one hundred and fifty-four interviewees have heard of zero-gravity flights conducted by NASA or others. Seventy-six respondents have not heard of zero-gravity flights.

Table 4 – Frequency distribution – knowledge of zero-gravity flights/gender

Have you heard of the zero-gravity, weightlessness flights conducted by NASA or others? / gender			Male		Female	
	N	%	N	%	N	%
Yes	154	66.96	86	37.39	68	29.57
No	76	33.04	28	12.17	48	20.87
Total	230	100	114	49.56	116	50.44

In the male group, eighty-six respondents (37.39 %) have heard of the zero-gravity flights and that constitutes the majority of the interviewees. Only twenty-eight males (12.17 %) have not heard of the zero-gravity flights.

In the female group of the interviewees, sixty-eight females (29.57 %) have heard of the zero-gravity flight, which is more than the number of females who have not heard of the zero-gravity flight, but it is less than the number of males who have heard of the zero-gravity flights.

Forty-eight females (20.87 %) have not heard of the zero-gravity flights, which is more than the number of males who have not heard of the zero-gravity flights. (See Table 4)

4.62 Knowledge of zero-gravity flights in relation to age groups

Two hundred and twenty-eight surveys were analyzed in order to explore the relationship between knowledge of zero-gravity flights and age groups. Two interviewees did not answer the age question and the interviewee that was sixteen years old was not included in the final count for this question. Each of the age range groups has more people who have heard of the zero-gravity flights, than those who have not heard of these flights.

Table 5 - Frequency distribution - knowledge of zero gravity flights and the age at the time of filling out the survey

Have you heard of the zero-gravity, weightlessness flights conducted by NASA or others? Age of Interviewees/			Yes		No	
	N	%	N	%	N	%
18-30	88	38.60	56	24.56	32	14.04
31-45	69	30.26	46	20.18	23	10.08
46-60	49	21.49	39	17.10	10	4.39
Over 60	22	9.65	12	5.26	10	4.39
Total	228	100	153	67.10	75	32.90

The largest group of interviewees belongs to "eighteen to thirty group" with fifty-six interviewees (24.56 %) who have heard of the zero-gravity flights. The "eighteen to thirty" age group has more people who have heard of the zero-gravity flights than any other age group within this survey. In the age range "thirty-one to forty-five," forty-six interviewees (20.18 %) have heard of zero-gravity flights, which is more than the number of people who have not heard of the zero-gravity flights in the same age group. The "thirty-one to forty-five" age range group constitutes the second largest age group of people who have heard of zero-gravity flights. The "forty-six to sixty" age range group has thirty-nine people who have heard of zero-gravity flights and there are only twelve people over sixty who have heard of zero-gravity flights. Each age range group had more people who have heard of zero-gravity flights than those who have not heard of these flights.

Only thirty-two people who are in the age range "eighteen to thirty" have not heard of zero-gravity flights, which is less than the number of people who have heard of zero-gravity flights, but it is more than the number of people who have not heard of zero-gravity flights in all other age groups. There are twenty-three people in the age group "thirty-one to forty-five," which is less than the number of interviewees who have heard of zero-gravity flights in the age groups "eighteen to thirty," "thirty-one to forty-five" and "forty-six to sixty," but it is more than the number of people in the "over sixty" age group who have heard of zero-gravity flights. There are ten interviewees who have not heard of zero-gravity flights in both the "forty-five to sixty" age group and the "over sixty" age group, which is less than the number of people who have heard of zero-gravity flights in both groups. (See Table 5)

4.63 Knowledge of zero-gravity flights in relation to level of education

Two hundred and twenty-six surveys were analyzed in order to explore the relationship between knowledge of zero-gravity flights and education levels. Level of education results were cross tabulated with the results of the survey question that examines how many people know about zero-gravity flights.

Out of one hundred and fifty-two people (the majority) who have heard of zero-gravity flights, forty-three interviewees with a bachelor's degree constitute the largest number of interviewees who have heard of zero-gravity flights. The interviewees with some college experience are the second largest group that has heard of the zero-gravity flights with forty-one interviewees in this group. There were thirty-nine interviewees with a graduate degree; twenty-nine interviewees with a high school degree and no interviewees with less than high school, who have heard of zero-gravity flights. Each of the education level groups has more people who have heard of the zero-gravity flights than those who have not heard of these flights, except "less than high school" group.

Table 6 - Frequency distribution - knowledge of zero-gravity flights and education level

Have you heard of the zero-gravity, weightlessness flights conducted by NASA or others? / Level of education			Yes		No	
	N	%	N	%	N	%
Less than high school	5	2.21	0	0.00	5	2.21
High school	52	23.01	29	12.83	23	10.18
Some college	52	23.01	41	18.14	11	4.87
Bachelor	68	30.09	43	19.03	25	11.06
Graduate	49	21.68	39	17.26	10	4.42
Total	226	100	152	67.26	74	32.74

Out of seventy-four people who have not heard of zero-gravity flights, twenty-five people with a bachelor's degree have not heard of zero-gravity flights; twenty-three interviewees with a high school degree and only eleven people with some college degree have not heard of zero-gravity flights. Only ten people with a graduate degree and five people with less than a high school education have not heard of zero-gravity flights. (See Table 6)

4.64 Interest in taking a zero gravity ride in relation to gender

Two hundred and thirty surveys were analyzed in order to explore the relationship between people's willingness to take a zero-gravity ride and gender. The interviewee who was sixteen years old was not included in the final count for the analysis of this section of the paper.

Table number 7 explores how many males and females, cost aside, would take a zero-gravity ride.

Table 7 – Frequency distribution - interest in taking a zero-gravity ride/ gender

Gender / Cost aside, would you take a ride like that?			Male		Female	
	N	%	N	%	N	%
Yes	122	53.04	72	31.30	50	21.74
Maybe	31	13.48	11	4.78	20	8.70
No	77	33.48	31	13.48	46	20.00
Total	230	100	114	49.56	116	50.44

In the male group, the majority, seventy-two respondents (31.30 %), would take a zero-gravity ride, if cost did not matter. There are eleven respondents in the male group who might take a zero-gravity ride, cost aside; there are thirty-one respondents (13.48 %) who would not take the zero-gravity ride.

In the female group of the interviewees, fifty females (21.74 %) would take a zero-gravity ride. There are twenty females (8.70 %) who would "maybe" take the ride; there are forty-six females (20.00 %) who would not take a zero-gravity ride.

The results show that there are less female respondents willing to take the ride than male respondents who are willing to take it. There are more female respondents, who would maybe take the ride (8.70 %) in that group than male respondents who are maybe considering taking the ride. There are more females (20 %) than males (13.48 %) who are not willing to take a zero-gravity ride. (See Table 7)

4.65 Interest in taking a zero gravity ride in relation to age groups

Two hundred and twenty-eight surveys were analyzed in order to explore the relationship between people's willingness to take a zero-gravity ride and age groups. There are three interviewees who were not included in the final count for this question; two interviewees did not give their age and one interviewee was sixteen years old. Table number 8 explores how many people of different age groups are willing to take a zero-gravity ride or maybe willing, or not willing, to take that ride.

The largest group of interviewees belongs to the "eighteen to thirty" age group out of which the majority of respondents, fifty-seven people (25 %) would like to take a zero-gravity ride. More people in the "eighteen to thirty" age group are willing to take a zero-gravity ride than in any other age group considered in the survey. There are twenty-one respondents (9.21%) who are between the ages of eighteen and thirty who do not want to take a zero-gravity ride and there are ten interviewees (4.39 %) who would maybe like to take the ride.

In the "thirty-one to forty-five" age group there are more people who would like to take a zero-gravity ride than those who would not like to take it, with forty-one respondents (17.98 %) ready to take the ride. There are twenty interviewees (8.77 %) who would not like to take the ride and eight interviewees (3.51 %) who would maybe like to take the ride.

Table 8 – Frequency distribution - interest in taking a zero-gravity ride/ age group

Cost aside, would you take a ride like that? / Age of Interviewees			Yes		Maybe		No	
	N	%	N	%	N	%	N	%
18-30	88	38.60	57	25.00	10	4.39	21	9.21
31-45	69	30.26	41	17.98	8	3.51	20	8.77
46-60	49	21.49	15	6.58	10	4.39	24	10.53
Over 60	22	9.65	7	3.07	3	1.31	12	5.26
Total	228	100	120	52.63	31	13.60	77	33.77

There are fifteen people who are between ages of forty-six and sixty who are interested in taking a zero-gravity ride, but there is a larger percentage of people who would not like to take the ride with twenty-four respondents (10.53 %) in this group. There are ten people (4.39 %) who are interested in maybe taking a zero-gravity ride.

There are seven people (3.07 %) in the "over sixty" age range who would like to take the ride. The majority of people, with twelve respondents (5.26 %), would not like to take the ride and three respondents (1.31 %) would maybe be interested in the ride. (See Table 8)

The results show that the number of people who would like to take a zero-gravity ride decreases as age increases. The "eighteen to thirty" group has the most people interested in the zero-gravity ride; the number of people interested in the ride falls as the age group of interviewees increases to thirty-one to forty-five, forty-five to sixty and over sixty.

The respondents who belong to the age groups up to forty-five years of age have more people interested in taking a zero-gravity ride than people who are not interested. The respondents who are over forty-six years old have less people interested in taking a zero-gravity ride and they have more respondents who are not interested in taking a zero-gravity ride. All the age groups have a low number of people (between 1.31 to 4.39 %) who are indecisive (maybe want to take the ride).

4.66 Interest in taking a zero-gravity ride in relation to levels of education

The answers of two hundred and twenty-six interviewees were analyzed in order to explore the relationship between people's willingness to take a zero-gravity ride and education levels. There are five interviewees who were not included in the final count for this question; three interviewees did not give their education level; one interviewee did not give their education level and interest in zero-gravity flights; one interviewee was sixteen years old. Table number 9 explores how many people of different education levels are willing to take a zero-gravity ride or maybe willing, or not willing, to take that the ride.

The largest group of interviewees has a bachelor's degree with sixty-eight respondents (30.09 %), out of which thirty-two interviewees (14.16 %), the majority of interviewees in this educational group, would be willing to take a zero-gravity ride; twenty-three people (10.18 %) would not like to take a zero-gravity ride and thirteen respondents (5.75 %) would maybe like to take a zero-gravity ride.

The interviewees with some college experience (fifty-two people) have the largest number of respondents who would be willing to take a zero-gravity ride, with thirty-three

respondents (14.60 %). There are fifteen interviewees (6.64 %) would not like to take a zero-gravity ride and there are four people (1.78 %) who would maybe like to take zero-gravity ride.

Table 9 – Frequency distribution - interest in taking a zero-gravity ride/ level of education

Cost aside, would you take a ride like that? / Level of education			Yes		Maybe		No	
	N	%	N	%	N	%	N	%
Less than high school	5	2.21	3	1.33	0	0.00	2	0.88
High school	52	23.01	25	11.06	6	2.65	21	9.29
Some college	52	23.01	33	14.60	4	1.78	15	6.64
Bachelor's	68	30.09	32	14.16	13	5.75	23	10.18
Graduate	49	21.68	28	12.39	6	2.65	15	6.64
Total	226	100	121	53.54	29	12.83	76	33.63

There are fifty-two respondents (23.01 %) with high school diploma out of which twenty-five interviewees (11.06 %) would like to take a zero-gravity ride; twenty-one interviewees (9.29 %) would not like to take a zero-gravity ride and six interviewees (2.65 %) would maybe be willing to take a zero-gravity ride.

Out of forty-nine interviewees with a graduate degree, twenty-eight interviewees (12.39%) would like to take a zero-gravity ride, fifteen interviewees (6.64 %) would not like to

take a zero-gravity ride and six interviewees (2.65 %) would maybe like to take a zero-gravity ride.

Out of five people (2.21 %) with less than a high school diploma, there were three people (1.33 %) who would be willing to take the zero-gravity ride, cost aside; there were two people (0.88 %) who would not like to take the ride and there were no people who would maybe like to take a zero-gravity ride. (See Table 9)

The results show that the largest percentage of people who would like to take a zero-gravity ride have a bachelor's degree and that the majority of people would like to take a zero-gravity ride. Out of the majority who would like to take a zero-gravity ride, the majority of interviewees in this group have some college experience and the second largest group of people willing to take the ride has a bachelor's degree. The next one on the list of people willing to take the ride are the interviewees with a graduate degree and then the interviewees with a high school diploma. The last are the interviewees with less than a high school education. The results show that the level of interest in the zero-gravity ride does not rise with the level of education. The results do show that the interviewees with some college experience and those with a bachelor's degree were the most interested in a zero-gravity ride.

The results also show that the respondents with a bachelor's degree have the largest number of interviewees who would not like to take a zero-gravity ride. The number of people who are not interested in a zero-gravity ride decreases upon examining respondents with a high school degree, those with a graduate degree, those some college experience and finally with those respondents having less than a high school education. All the education level groups have a low number of people (between 0.00 – 5. 75 %) that are indecisive, who maybe want to take the ride (See Table 9).

4.7 Suborbital questions and the Ansari X-Prize in relation to demographic information (gender / age group and educational level) of the interviewees

The goal of this section is to explore the relation between interviewees' demographics and their answers to questions about suborbital flights and the Ansari X-Prize. Suborbital and the Ansari X-Prize questions encompass the following questions:

Question number 10: Have you heard of the Ansari X-Prize and/or suborbital flights to the edge of space (about 60 miles)? Yes No

If the answer is No, explain the concept of a suborbital flight that reaches the edge of space, offers 3 to 4 minutes of weightlessness, and returns to earth.

Question number 11: Richard Branson, president of Virgin Airways and star of his own reality show has announced that he will offer suborbital flights in 3 years. Do you think that he will be able to accomplish this in 3 years? Yes No

Question number 12: Cost aside, would you take a ride like that? Yes Maybe No

Question number 13: You would be in a smallish, 5 to 7-passenger cabin with the pilot for about two hours (much like a very short passenger plane). Would you want to ride even though the quarters might be a bit crowded?

Question number 14: Assuming that you were willing to go, what would you pay (exclusive of costs like travel to the site and accommodations) for a suborbital ride lasting about two hours? (See Appendix A-original questions)

These questions were cross-referenced with the "gender distribution" question (question number three), the "age group" question (question number four) and the "educational level" question (question number five). (See Appendix A-original questions)

4.71 Knowledge of suborbital flights and the Ansari X-Prize in relation to gender

Two hundred and twenty-nine surveys were analyzed in order to find out whether there is a relationship between the interviewees who have heard of suborbital flights, the Ansari X-Prize and the gender. Two surveys were not included in research of this relationship; one male interviewee did not answer whether he has heard of suborbital flights and / or the Ansari X-Prize and the other interviewee was sixteen years old (he did not belong to the explored market of age eighteen and up).

Table 10 - Knowledge of suborbital flights and the Ansari X-Prize/ gender

Gender/ Have you heard of the Ansari X-Prize and/or suborbital flights to the edge of space (about 60 miles)?			Male		Female	
	N	%	N	%	N	%
Yes	101	44.10	58	25.33	43	18.78
No	128	55.90	55	24.02	73	31.88
Total	229	100	113	49.35	116	50.66

In the male group, fifty-eight respondents (25.33 %) have heard of suborbital flights and/or the Ansari X-Prize; fifty-five respondents (24.02 %) have not heard of suborbital flights and / or the Ansari X-Prize.

In the female group, forty-three respondents (18.78 %) have heard of suborbital flights and/or the Ansari X-Prize. The majority of female interviewees, seventy-three respondents (31.88%), have not heard of suborbital flights and / or the Ansari X-Prize.

The results show that there is nearly an equal number of males who have heard of and those males who have not heard of suborbital flights and / or the Ansari X-Prize. There is a bigger gap between females who have heard of suborbital flights and / or the Ansari X-Prize and those who have not heard of these flights and the X-Prize. The results also show that more males have heard of suborbital flights and the X-Prize than females. There are more females in this survey who have not heard of zero-gravity flights (seventy-three females) than males (fifty-eight males) who have heard of suborbital flights and the Ansari X-Prize. (See Table 10)

4.72 Knowledge of suborbital flights and the Ansari X-Prize in relation to age groups

Two hundred and twenty-eight surveys were analyzed in order to explore the relationship (and whether there is one) between the interviewees who have heard of suborbital flights and the Ansari X-Prize and their ages. Three surveys were not included in the research of this relationship; two interviewees did not give out their age and one interviewee was sixteen years old (he did not belong to the explored market of age eighteen and up).

Out of eighty-eight interviewees, in the eighteen to thirty age range, who have heard of suborbital flights and the Ansari X-Prize, fifty-four interviewees (23.68 %), the majority, have not heard of the suborbital flights and the X-Prize. There are thirty-four respondents (14.91 %) in this age group who have heard of suborbital flights and the X-Prize.

Out of sixty-nine interviewees, in the thirty-one to forty-five age group, thirty-six interviewees (15.79 %) have heard of zero-gravity flights, which is one percent more than the

interviewees who have heard of the suborbital flights and the X-Prize with thirty-three respondents (14.47 %).

Table 11 – Frequency distribution – Knowledge of suborbital flights and Ansari X-Prize/ age group

Have you heard of the Ansari X-Prize and/or suborbital flights to the edge of space (about 60 miles)? Age of Interviewees			Yes		No	
	N	%	N	%	N	%
18-30	88	38.60	34	14.91	54	23.68
31-45	69	30.26	36	15.79	33	14.47
46-60	49	21.49	22	9.65	27	11.84
Over 60	22	9.65	9	3.95	13	5.70
Total	228	100	101	44.30	127	55.70

Out of forty-nine interviewees in the age range of forty-six to sixty, twenty-seven interviewees (11.84 %), the majority, have not heard of suborbital flights and the X-Prize. There were twenty-two respondents (9.65 %) who have heard of the suborbital flights and the X-Prize.

Out of twenty-two interviewees over sixty years old, thirteen interviewees (5.70 %), the majority, have not heard of suborbital flights and the Ansari X-Prize. There were nine respondents (3.95 %) who have heard of suborbital flights and the Ansari X-Prize.

The results show that out of all age groups, the interviewees who are in the age range eighteen to thirty have the highest number of people who have not heard of suborbital flights and

the Ansari X-Prize. The number of people who have not heard of zero-gravity flights decreases with each older age group.

The interviewees in the age range of thirty-one to forty-five are the only age group in which the majority of respondents have heard of suborbital flights and the X-Prize. The respondents in all other age groups have the majority who has not heard of suborbital flights and the X-Prize. (See Table 11)

4.73 Knowledge of suborbital flights and the Ansari X-Prize in relation to level of education

Two hundred and twenty-five surveys were analyzed in order to explore the relationship (and if there is one) between the interviewees who have heard about suborbital flights and the Ansari X-Prize and their level of education. Six surveys were not included in the research of this relationship; one interviewee did not answer whether they heard of suborbital flights and the Ansari X-Prize; four interviewees did not give out their education level and one interviewee was sixteen years old (he did not belong to the explored market of age eighteen and up).

Out of sixty-seven respondents (29.78 %), with a bachelor's degree, the majority of the interviewees have not heard of suborbital flights and the Ansari X-Prize with forty-four respondents (19.56 %). There were twenty-three respondents (10.22 %) who have heard of the Ansari X-Prize and the suborbital flights.

Out of fifty-two respondents (23.11 %) with some college experience, the majority of interviewees, thirty-two respondents (14.2 %) have heard of the suborbital flights and the Ansari X-Prize. There were twenty respondents (8.89 %) who have not heard of the suborbital flights and the X-Prize.

Out of fifty-two respondents (23.11 %) with a high school diploma, the majority of the interviewees, thirty-eight respondents (16.89 %), have not heard of the suborbital flights and the Ansari X-Prize. There were only fourteen respondents (6.22 %) who have heard of the suborbital flights or the Ansari X-Prize.

Table 12 – Frequency distribution - Knowledge of suborbital flights and the Ansari X-Prize/ level of education

Have you heard of the Ansari X-Prize and/or suborbital flights to the edge of space (about 60 miles)? / Level of education			Yes		No	
	N	%	N	%	N	%
Less than high school	5	2.22	0	0.00	5	2.22
High school	52	23.11	14	6.22	38	16.89
Some college	52	23.11	32	14.22	20	8.89
Bachelor's	67	29.78	23	10.22	44	19.56
Graduate	49	21.78	31	13.78	18	8.00
Total	225	100	100	44.44	125	55.56

Out of forty-nine respondents (21.78 %) with a graduate degree, thirty-one respondents (13.78 %), the majority, have heard of suborbital flights and the Ansari X-Prize. There were eighteen respondents (8 %) who have not heard of the Ansari X-Prize and the suborbital flights.

Out of five respondents (2.22 %) with less than a high school diploma, all five respondents (2.22 %) have not heard of the Ansari X-Prize and the suborbital flights.

The results show that the majority of the interviewees who have heard of the Ansari X-Prize and the suborbital flights have some college experience. They are followed by the interviewees with a graduate degree, with thirty-one respondents. The respondents with a bachelor's degree are in the middle with twenty-three respondents who have heard of the Ansari X-Prize and the suborbital flights. The respondents with a high school diploma represent the minority with only fourteen respondents who have heard of the Ansari X-Prize and the suborbital flights. Respondents with less than a high school education have not heard of the Ansari X-Prize and the suborbital flights.

The results show that the number of respondents who have heard of the Ansari X-Prize and the suborbital flights does not directly increase with every higher education level. The results did show that respondents with some college experience and higher levels of education are more familiar with the Ansari X-Prize and suborbital flights than the respondents with a high school diploma or respondents with less than a high school diploma. The results show that a relationship between education level and familiarity with the Ansari X-Prize and the suborbital flights could exist.

The majority of the interviewees who have not heard of the Ansari X-Prize and the suborbital flights have a bachelor's degree. This educational group is followed by the respondents with a high school diploma, with thirty-eight respondents. The respondents with some college experience are in the middle with twenty respondents who have not heard of the Ansari X-Prize and suborbital flights. The minority of respondents who have not heard of the Ansari X-Prize and suborbital flights represent graduate respondents and the ones with less than

high school education. The results in this section show that respondents who have not heard of the Ansari X-Prize and the suborbital flights come from every educational level. (See Table 12)

4.74 Suborbital flights in 3 years in relation to gender

Two hundred and twenty-eight surveys were analyzed in order to explore thoughts of men and women interviewees in regards to making suborbital flights a reality in three years from December of 2004. The question is whether Richard Branson, the president of Virgin Airways, will be able to offer suborbital flights in three years. Three surveys were not included in the analysis of male/female thoughts on the possibility of suborbital flights in three years. One interviewee was sixteen years old (she did not belong to the explored market of age eighteen and up); one interviewee did not answer whether he thinks suborbital flights will be happening in three years or not; one interviewee answered that she thinks the suborbital flights will maybe happen in three years. Maybe is not one of the offered answer choices (yes or no), so her answer was disqualified.

Table 13 – Frequency distribution – suborbital flights in 3 years / gender

Gender/ Possibility of suborbital flights in 3 years?			Male		Female	
	N	%	N	%	N	%
Yes	127	55.70	66	28.95	61	26.75
No	101	44.30	47	20.61	54	23.69
Total	228	100	113	49.56	115	50.44

Out of one hundred and twenty-seven interviewees (55.70 %), the majority, who believe that suborbital flights will happen in three years, there are sixty-six males (28.95 %) and sixty-one females (26.75 %). Out of one hundred and one interviewees (44.30 %) who do not think suborbital flights will happen in three years, there are forty-seven males (20.61 %) and fifty-four females (23.69 %).

The results of this analysis show that the majority of respondents who think suborbital flights will happen in three years are male respondents. The majority of female respondents do not think that Richard Branson will be able to offer suborbital flights three years from December of 2004. (See Table 13)

4.75 Suborbital flights in 3 years in relation to age group

Two hundred and twenty-six surveys were analyzed in order to explore what the interviewees of different age groups think about making suborbital flights a reality in three years from December of 2004. The analysis discovers the impact of age (and whether there is one) on the interviewees' opinions. Five surveys were not included in the analysis of the interviewees' thoughts (in relation to different age groups) as to the possibility of suborbital flights in three years. One interviewee did not answer whether he thinks suborbital flights will be happening in three years or not; one interviewee answered that she thinks the suborbital flights will maybe happen in three years and maybe is not one of the offered choices (yes or no) to answer so her answer is disqualified; one interviewee was sixteen years old (she did not belong to the explored market of age eighteen and up); two interviewees did not give their age.

Out of eighty-seven interviewees (38.60 %) in the eighteen to thirty age range, the majority of the interviewees, forty-eight respondents (21.24 %) think that Richard Branson will

be able to offer suborbital flights in three years. There are thirty-nine respondents (17.26 %) who do not believe suborbital flights will happen in three years.

Out of sixty-nine interviewees, in the thirty-one to forty-five age group, thirty-seven interviewees (16.37 %) think suborbital flights will happen in three years. This number is about two percent more than the interviewees who do not believe suborbital flights will happen in three years with thirty-two respondents (14.16 %).

Table 14 - Suborbital flights in 3 years / age group

Possibility of suborbital flights in 3 years / Age of Interviewees/			Yes		No	
	N	%	N	%	N	%
18-30	87	38.60	48	21.24	39	17.26
31-45	69	30.26	37	16.37	32	14.16
46-60	49	21.49	26	11.50	23	10.18
Over 60	21	9.65	14	6.20	7	3.09
Total	226	100	125	55.31	101	44.69

Out of forty-nine interviewees (21.49 %) in the age range of forty-six to sixty, twenty-six interviewees (11.85 %), the majority, think suborbital flights will happen in three years. There were twenty-three respondents (10.18 %) who believe Richard Branson will offer suborbital flights in three years.

Out of twenty-one interviewees (9.65 %) over sixty years old, fourteen interviewees (6.20 %), the majority, think suborbital flights will happen in three years. There were seven respondents (3.09 %) who think suborbital flights will not happen in three years.

The results show that the majority of respondents in all the age groups think suborbital flights will happen in three years. Out of all age groups, the interviewees who are in the age range eighteen to thirty have the highest number of people who think suborbital flights will happen in three years and the highest number of respondents who think suborbital flights will not happen in three years. The percentage of people who think suborbital flights will happen decreases with each older age group. (See Table 14)

4.76 Suborbital flights in 3 years in relation to education levels

Two hundred and twenty-four surveys were analyzed in order to explore what the interviewees of different education levels think of making suborbital flights a reality in three years from December of 2004. The analysis discovers the impact of education level (and whether there is one) on the interviewees' opinions. Seven surveys were not included in the analysis of the interviewees' thoughts (in relation to education) on the possibility of suborbital flights in three years. One interviewee did not answer whether he thinks suborbital flights will be happening in three years or not; one interviewee answered that she thinks the suborbital flights will maybe happen in three years and maybe is not one of the offered choices (yes or no) to answer so her answer is disqualified; one interviewee was sixteen years old (she did not belong to the explored market of age eighteen and up); four interviewees did not give out their education level.

Table 15 – Frequency distribution - suborbital flights in 3 years / level of education

Possibility of suborbital flights in 3 years/ Level of education			Yes		No	
	N	%	N	%	N	%
Less than high school	5	2.23	4	1.79	1	0.45
High school	52	23.21	28	12.50	24	10.71
Some college	52	23.21	38	16.96	14	6.25
Bachelor	66	29.46	31	13.84	35	15.62
Graduate	49	21.88	26	11.61	23	10.27
Total	224	100	127	56.70	97	43.30

Out of sixty-six interviewees (29.46 %) with a bachelor's degree, the majority of the interviewees do not think that the suborbital flights will be offered in three years with thirty-five respondents (15.62 %). There were thirty-one respondents (13.84 %) who believe suborbital flights will happen in three years.

Out of fifty-two respondents (23.11 %) with some college experience, the majority of interviewees, thirty-eight respondents (16.96 %), think suborbital flights will be offered in three years. There are fourteen respondents (6.25 %) who think suborbital flights will not happen in three years.

Out of fifty-two respondents (23.11 %) with a high school diploma, the majority of the interviewees, twenty-eight respondents (12.50 %), think suborbital flights will happen in three years. There were twenty-four respondents (10.71 %) who believe suborbital flights will not be offered in three years.

Out of forty-nine respondents (21.88 %) with a graduate degree, twenty-six respondents (11.61 %), the majority, think that suborbital flights will be offered in three years. There are twenty-three respondents (10.27 %) who believe suborbital flights will not happen in three years.

Out of five respondents (2.23 %) with less than a high school diploma, four respondents (1.79 %) think that suborbital flights will happen in three years. One interviewee believes suborbital flights will not happen in three years.

The results show that the majority of the interviewees who think suborbital flights will be offered in three years have some college experience (16.96 %). That same belief is seen in the interviewees with a bachelor's degree, a high school diploma, or graduate degree and the ones with less than a high school education. The majority of the interviewees in all education levels, except the interviewees with the bachelor's degree, believe suborbital flights will happen in three years.

The results show that the percentage of respondents, who believe suborbital flights will happen in three years, does not increase with each higher education level. The results did show that respondents with some college experience, a high school diploma and the ones on the graduate level who think suborbital flights will happen in three years are in the majority. (See Table 15)

4.77 Interest in taking suborbital flights in relation to gender

Two hundred and twenty-nine surveys were analyzed in order to explore the relationship between the interviewees' willingness to take a suborbital ride and their gender. Two surveys were not included in the analysis of this question; one interviewee was sixteen years old (he did not belong to the explored market of age eighteen and up); one interviewee did not answer the question of taking a suborbital ride or not, cost aside. Table number 19 explores how many males and females, cost aside, would take a suborbital ride.

Table 16 – Frequency distribution - interest in taking a suborbital ride/ gender

Gender / Cost aside, would you take a ride like that?			Male		Female	
	N	%	N	%	N	%
Yes	108	47.16	65	28.38	43	18.78
Maybe	49	21.40	18	7.86	31	13.54
No	72	31.44	30	13.10	42	18.34
Total	229	100	113	49.34	116	50.66

Out of one hundred and thirteen males (49.34 %), the majority, sixty-five respondents (28.38 %), would take a suborbital ride, cost aside. There are eighteen respondents (7.86 %) who would maybe take a suborbital ride, cost aside; there are thirty respondents (13.10 %) who would not like to take a suborbital flight.

Out of one hundred and sixteen females (50.66 %), forty-three females (18.78 %) would take a suborbital flight. There are thirty-one females (13.54 %) who would maybe take a

suborbital ride, cost aside; there are forty-two females (18.34 %) who would not take the suborbital ride.

The results show that the percentage of females willing to take the ride is less than the percentage of male respondents who are willing to take it. There is a higher percentage of females who would take this type of ride, cost aside, (13.54 %) than male respondents (7.86 %) who are maybe considering to take a suborbital ride. There are more females (18.34 %) than males (13.10 %) who are not willing to take a suborbital ride. (See Table 16)

4.78 Interest in taking suborbital flights in relation to age groups

Two hundred and twenty-seven surveys were analyzed in order to explore the relationship (and whether there is one) between people's willingness to take a suborbital flights (cost aside) and their age. Four surveys were not included in the final count for this question; two interviewees did not give out their age; one interviewee was sixteen years old (he did not belong to the explored market of age eighteen and up); one interviewee did not provide an answer of whether they would take a suborbital ride or not, cost aside. Table 20 explores how many people of different age groups are willing to take a suborbital ride or maybe willing, or not willing, to take that ride.

The largest group of interviewees belongs to the "eighteen to thirty" age group out of which the majority of respondents, fifty-one respondents (22.47 %) would like to take a suborbital ride. There are nineteen respondents (8.37 %) who are between the ages of eighteen and thirty who do not want to take a suborbital ride; there are eighteen interviewees (7.93 %) who would maybe like to take the ride, cost aside.

Out of sixty-nine interviewees, in the "thirty-one to forty-five" age group, thirty-six interviewees (15.86 %) would like to take a suborbital ride, cost aside. There are seventeen interviewees (7.49 %) who would maybe like to take a suborbital ride; there are sixteen respondents (7.05 %) who would not like to take a suborbital ride, cost aside.

Table 17 – Frequency distribution - interest in taking a suborbital ride / age group

Cost aside, would you take a ride like that? / Age of Interviewees			Yes		Maybe		No	
	N	%	N	%	N	%	N	%
18-30	88	38.77	51	22.47	18	7.93	19	8.37
31-45	69	30.40	36	15.86	17	7.49	16	7.05
46-60	48	21.14	13	5.73	12	5.29	23	10.13
Over 60	22	9.69	6	2.64	2	0.88	14	6.17
Total	227	100	106	46.70	49	21.59	72	31.72

Out of forty-eight interviewees (21.14 %) in the age range of forty-six to sixty, thirteen interviewees (5.73 %) would take a suborbital flight, cost aside; there are twenty-three respondents (10.13 %) who would not like to take a suborbital flight, cost aside; there are twelve respondents (5.29 %) who would maybe like to take a suborbital ride.

Out of twenty-two interviewees (9.69 %) over sixty years old, fourteen interviewees (6.17 %), would not take a suborbital ride, cost aside; six respondents (2.64 %) would like to

take a suborbital ride. There are two respondents (less than 1 %) who would maybe like to take a suborbital ride.

The results of the frequency distribution analysis show that a larger percentage of people in the "eighteen to thirty" age group who are willing to take a suborbital ride than in any other age group considered in the survey. In the "thirty-one to forty-five" age group there is a larger percentage of people who would like to take a suborbital ride than those who would not like to take it, with thirty-six respondents (15.86 %) ready to take the ride.

The majority of the interviewees in the age range "forty-six to sixty" would not like to take a suborbital flight, cost aside, with 10.13 %; the majority of people who are over sixty with 6.17 % would also not like to take a suborbital ride.

The results show that the percentage of people who would like to take a suborbital ride decreases with the age increase. The respondents who belong to the age groups up to forty-five years of age have a larger percentage of people interested in taking a suborbital ride, than people who are not interested. The respondents who are over forty-six years old have a lower percentage of people interested in taking a suborbital ride and they have more respondents who are not interested in taking a suborbital ride. All the age groups have a low percentage of people (between 0.88 – 7.93 %) who are indecisive (maybe want to take the ride). (See Table 17)

4.79 Interest in taking suborbital flights in relation to education levels

The answers of two hundred and twenty-five interviewees were analyzed in order to explore the relationship between people's willingness to take a suborbital ride and education levels. There are six interviewees who were not included in the final count for this question; three interviewees did not give out their education level; four interviewees did not give out their

education level; one interviewee did not answer the question of interest in suborbital flights; one interviewee was sixteen years old. This frequency distribution table explores how many people of different education levels are willing to take a suborbital ride or maybe willing, or not willing, to take that the ride.

Out of sixty-eight respondents (30.22 %) with a bachelor's degree, twenty-nine interviewees (12.89 %) would be willing to take a suborbital ride; twenty-two people (9.78 %) would not like to take a suborbital ride; seventeen respondents (7.56 %) would maybe like to take a suborbital ride.

Out of fifty-two interviewees (23.11 %) with some college experience, thirty-four respondents (15.11 %) would be interested in taking a suborbital ride. There are eleven interviewees (4.89 %) who would not like to take a suborbital flight; seven respondents (3.11 %) would maybe like to take a suborbital flight.

There are fifty-two respondents (23.11 %) with high school diploma out of which twenty-one interviewees (9.33 %) would like to take a suborbital flight; twenty-one interviewees (9.33 %) would not like to take a suborbital flight; there are ten respondents (4.44 %) who would maybe like to take a suborbital flight.

Out of forty-eight interviewees (21.33 %) with a graduate degree, twenty-one interviewees (9.33 %) would like to take a suborbital ride; fifteen interviewees (6.67 %) would not like to take a suborbital ride; twelve interviewees (5.33 %) would maybe like to take a suborbital ride.

Table 18– Frequency distribution - interest in taking a suborbital flight/ level of education

Cost aside, would you take a ride like that? / Level of education			Yes		Maybe		No	
	N	%	N	%	N	%	N	%
Less than high school	5	2.22	2	0.89	1	0.44	2	0.89
High school	52	23.11	21	9.33	10	4.44	21	9.33
Some college	52	23.11	34	15.11	7	3.11	11	4.89
Bachelor's	68	30.22	29	12.89	17	7.56	22	9.78
Graduate	48	21.33	21	9.33	12	5.33	15	6.67
Total	225	100	107	47.55	47	20.89	71	31.56

Out of five interviewees (2.22 %) with less than a high school diploma, there were two respondents (less than 1 %) who would like to take a suborbital ride; there were two respondents (less than 1 %) who would not like to take a suborbital flight; one person would maybe like to take a suborbital ride.

The largest group of interviewees has a bachelor's degree with twenty-nine interviewees (12.89 %), the majority of interviewees in this educational group, who would be interested in taking a suborbital ride, cost aside.

The interviewees with some college experience (fifty-two people) have the largest number of respondents who would be willing to take a suborbital flight, cost aside, with thirty-four respondents (15.11 %).

The respondents with a high school diploma have an equal number of respondents who would like to take a suborbital ride and those who would not like to take this ride. The number of interviewees who would maybe like to take a suborbital flight is lower than the previous two groups with a high school diploma (The interviewees with high school diploma who would take the ride and those who would not take the ride).

The majority of the respondents with a graduate degree would like to take a suborbital flight. The respondents with less than high school diploma have a similar structure as the respondents with a high school diploma in the sense of both having an equal number of people would like to take a suborbital flights and those who would not like to take it (difference is in a percentage).

The results show that the largest percentage of people with bachelor's degree would like to take a suborbital ride. Out of the majority who would like to take a suborbital ride, the main percentage of interviewees have some college experience. (See Table 18)

4.8 Would the crowded quarters make a difference in decision making process to take a suborbital ride or not/gender

Two hundred and thirty surveys were analyzed in order to explore male and females' willingness to take a suborbital flight in a bit crowded quarters. One survey was not included in the final count for this question: one interviewee was sixteen years old (he did not belong to the explored market of age eighteen and up)

Table 19– Frequency distribution – Would the crowded quarters make a difference in decision making process to take a suborbital ride or not? / gender

Gender / Would you want to ride even though the quarters might be a bit crowded? /			Male		Female	
	N	%	N	%	N	%
Yes	116	50.44	63	27.39	53	23.04
No	114	49.56	51	22.17	63	27.39
Total	230	100	114	49.56	116	50.44

Out of one hundred and fourteen males (49.56 %), the majority, sixty-three respondents (27.39 %), would take a suborbital ride in a bit crowded quarters. There are fifty-one respondents (22.17 %) who would not like to take a suborbital ride in a bit crowded quarters.

Out of one hundred and sixteen females (50.44 %), fifty-three females (23.04 %) would take a suborbital flight in a bit crowded quarters. There are sixty-three females (27.39 %) who would not take a suborbital ride in a bit crowded quarters.

The results show that is a smaller percentage of female respondents willing to take the suborbital ride in a bit crowded quarters than male respondents. Male respondents are more willing to take the ride in crowded quarters. There are more females (27.39 %) than male respondents (22.17 %) who would not take this type of ride in a bit crowded quarters. (See Table 19)

4.81 Would the crowded quarters make a difference in decision making process to take a suborbital ride or not/age groups

Two hundred and twenty-eight surveys were analyzed in order to explore the relationship between people's willingness to take a suborbital flight in a bit crowded quarters and their age. Three surveys were not included in the final count for this question; two interviewees did not give out their age; one interviewee was sixteen years old (he did not belong to the explored market of age eighteen and up). Table number 23 explores how many people of different age groups are willing to take a suborbital, or not willing to take that ride in a bit crowded quarters.

The largest group of interviewees belongs to the "eighteen to thirty" age group out of which the majority of respondents, forty-seven respondents (20.61 %) would not take a suborbital ride in a bit crowded quarters. There are forty-one respondents (17.98 %) who are between the ages of eighteen and thirty who would take a suborbital ride in crowded quarters.

Table 20– Frequency distribution - Would the crowded quarters make a difference in decision making process to take a suborbital ride or not? / age group

Would you want to ride even though the quarters might be a bit crowded? / Age of Interviewees			Yes		No	
	N	%	N	%	N	%
18-30	88	38.60	41	17.98	47	20.61
31-45	69	30.26	44	19.30	25	10.96
46-60	49	21.49	22	9.65	27	11.84
Over 60	22	9.65	7	3.07	15	6.58
Total	228	100	114	50.00	114	50.00

Out of sixty-nine interviewees, in the "thirty-one to forty-five" age group, forty-four interviewees (19.3 %) would take a suborbital ride in a bit crowded quarters. There are twenty-five interviewees (10.96 %) who would not take a suborbital ride in crowded quarters.

Out of forty-nine interviewees (21.49 %) in the age range of forty-six to sixty, twenty-two interviewees (9.65 %) would take a suborbital flight in crowded quarters; there are twenty-seven respondents (11.84 %) who would not take a suborbital flight in crowded quarters.

Out of twenty-two interviewees (9.65 %) over sixty years old, fifteen interviewees (6.58 %), would not take a suborbital ride in crowded quarters; seven respondents (3.07 %) would take a suborbital ride even in crowded quarters.

The results of the frequency distribution analysis show that the percentage of people in the "eighteen to thirty" age group, who are not willing to take a suborbital ride in crowded quarters, is higher than in any other age group considered in the survey. In the "thirty-one to forty-five" age group the percentage of people, who would like to take a suborbital ride even in crowded quarters, is higher than of those who would not like to take it, with 19.3 % ready to take the ride.

The majority of the interviewees (11.84 %) in the age range "forty-six to sixty" would not take a suborbital flight in crowded quarters; the majority of people who are over sixty (6.58 %) would also not take a suborbital ride in crowded quarters.

The results show that for one hundred and fourteen interviewees (50 %) crowded quarters make a difference in their decision making process to take a suborbital ride. The results also show that for another one-hundred-and-fourteen interviewees (50 %) crowded quarters don't make a difference in their decision making process to take a suborbital ride.

The percentage of people who would like to take a suborbital ride even in crowded quarters decreases with the age increase ("thirty-one to forty-five" group is an exception). The "eighteen to thirty" group has the most people not interested in the suborbital ride in crowded quarters; the number of people not interested in the ride in a crowded quarters falls as the age group of interviewees increases to thirty-one to forty-five, forty-five to sixty and over sixty.

The respondents who belong to the age groups up to forty-five years of age have more people interested in taking a suborbital ride even in crowded quarters, than people who are not interested in it.

The respondents who are over forty-six years old have less people interested in taking a suborbital ride in crowded quarters and they have more respondents who are not interested in taking a suborbital ride with these conditions in place. (See Table 20)

4.82 Would the crowded quarters make a difference in decision making process to take a suborbital ride or not / level of education

The answers of two hundred and twenty-six interviewees were analyzed in order to explore the relationship between people's willingness to take a suborbital ride in a bit crowded quarters and people's education levels. There are five interviewees who were not included in the final count for this question; four interviewees did not give out their education level; one interviewee was sixteen years old. Table number 24 explores how many people of different education levels are willing to take a suborbital ride, or not willing to take that ride in a bit crowded quarters.

Out of sixty-eight respondents (30.09 %) with a bachelor's degree, thirty-seven interviewees (16.37 %) would be willing to take a suborbital ride in a bit crowded quarters; thirty-one respondents (13.72 %) would not like to take a suborbital ride in a crowded quarter.

Out of fifty-two interviewees (23.01 %) with some college experience, thirty respondents (13.27 %) would be interested in taking a suborbital ride even in a bit crowded quarters. There are twenty-two interviewees (9.73 %) who would not be willing to take a suborbital flight in a bit crowded quarters.

There are fifty-two respondents (23.01 %) with high school diploma out of which twenty-one interviewees (9.73 %) would like to take a suborbital flight even in a bit crowded quarters; thirty interviewees (13.27 %) would not like to take a suborbital flight in a bit crowded quarters. (See Table 21)

Table 21 – Frequency distribution - Would the crowded quarters make a difference in decision making process to take a suborbital ride or not? / level of education

Would you want to ride even though the quarters might be a bit crowded? /			Yes		No	
Level of education	N	%	N	%	N	%
Less than high school	5	2.21	3	1.33	2	0.88
High school	52	23.01	22	9.73	30	13.27
Some college	52	23.01	30	13.27	22	9.73
Bachelor's	68	30.09	37	16.37	31	13.72
Graduate	49	21.68	23	10.18	26	11.50
Total	226	100	115	50.88	111	49.12

Out of forty-nine interviewees (21.68 %) with a graduate degree, twenty-three interviewees (10.18 %) would like to take a suborbital ride even in a bit crowded quarters; twenty-six interviewees (11.50 %) would not like to take a suborbital ride in a bit crowded quarters.

Out of five interviewees (2.21 %) with less than a high school diploma, there were three respondents (less than 1 %) who would like to take a suborbital ride even in a bit crowded quarters; there were three respondents (less than 1 %) who would not be willing to take a suborbital ride in a bit crowded quarters.

The largest group of interviewees has a bachelor's degree with a highest percentage of interviewees (16.37 %) in this educational group who would be interested in taking a suborbital ride even in a bit crowded quarters.

The interviewees with some college experience (fifty-two people) have a larger percentage of respondents (13.27 %) who would be willing to take a suborbital flight even in a bit crowded quarters, than the percentage of respondents (9.73 %) who would mind a bit crowded quarters.

The respondents with a high school diploma have a larger percentage of respondents (13.27 %) who would not be willing to take a suborbital ride in a bit crowded quarters than the percentage of respondents (9.73 %) who would be willing to take this ride in a bit uncomfortable conditions.

The majority of the respondents with a graduate degree would like to take a suborbital flight. The respondents with less than high school diploma have 1.33 % of respondents who would like to take a suborbital ride even in a bit crowded quarters; less than 1 % of respondents would not be willing to take the suborbital ride in a bit crowded quarters.

The results show that the largest percentage of respondents who would like to take a suborbital ride have a bachelor's degree. The majority of respondents (50.88 %) would like to take a suborbital ride even in a bit crowded quarters. Also, a large number of respondents (49.12 %) would not be willing to take the ride in a bit crowded quarters.

The results show that the level of interest in a suborbital flight does not increase with the level of education. The results do show that the interviewees with some college experience and bachelor's degree have the highest percentage of respondents who would be willing to take a suborbital ride even in a bit uncomfortable conditions.

4.9 Habitat Flights

The habitat questions revealed information about the number of people who have heard of space tourists, Dennis Tito and Mark Shuttleworth, who visited the International Space Station; people's interest in taking such a ride and the reasons behind why they would be reluctant to take this ride or why they are sure they would not want to take it at all. The respondents were also asked to give the price that they would be willing to pay to take a ride to a space habitat assuming that they were willing to take it in the first place. The respondents were asked to reveal what they would like to do during their visit to a space habitat as well as their opinions on when the inflatable space habitat will happen. The habitat questions encompass the following survey questions:

Question number 15: Have you heard of the space tourists, Dennis Tito and Mark Shuttleworth, who visited the International Space Station? Yes No

Question number 16: A Las Vegas entrepreneur has received approval for an inflatable space habitat. He has offered a $50 million prize for anyone who can create a rocket to reach the

habitat (about 350 miles up) – without government support. Do you think this will happen by 2010? Yes No

Question number 17: Cost aside, would you visit a habitat in space? Yes Maybe No

Question number 18: Your visit would be in an inflatable habitat perhaps about the size of two oversize Winnebago RVs. Would you want to visit even though the quarters might have six to eight visitors in that space for 72 hours? Yes Maybe No

Question number 19: What would you like to do while you are there or during any other part of the trip?

Question number 20: Assuming that you were willing to go, what would you pay for the 3-day visit to an orbital habitat?

Question number 21: General Question: When, if ever, do you think commercial space tourism (any of the three options) will occur?

The habitat questions were excluded from cross-tabulating the survey results with the "gender distribution" question, "age group" question or "education level" question as instructed and explained in chapter 3 of the research paper.

4.91 Have the interviewees heard of the space tourists?

Two hundred and twenty-seven surveys were analyzed in order to measure the number of respondents who have heard of the first two space tourists. Four surveys were not included in the final count for this question: three interviewees did not answer this question; one interviewee was sixteen years old (she did not belong to the explored market of age eighteen and up).

Out of two hundred and twenty-seven interviewees, one hundred and eighteen interviewees (51.98 %) have heard of Dennis Tito and Mark Shuttleworth, the first two space

tourists, who visited the International Space Station. Seventy-six respondents (48.02 %) have not heard of Dennis Tito and Mark Shuttleworth.

The results show that the majority have heard of the first two space tourists. Approximately 3 % more of the respondents have heard of Dennis Tito and Mark Shuttleworth than the respondents who have not heard of the first two space tourists. The results also show that there is an opportunity to build more space tourism awareness and reach the potential space tourism market of 48.02 % of respondents who haven't heard of the space tourists. (See Table 22)

Table 22 – Frequency distribution – Have the interviewees heard of the space tourists?

Have you heard of the space tourists, Dennis Tito and Mark Shuttleworth, who visited the International Space Station?	N	%
Yes	118	51.98
No	109	48.02
Total	227	100

4.92 Do the interviewees think that the travel to an inflatable space habitat will happen by 2010?

Two hundred and twenty-eight surveys were analyzed in order to measure the number of respondents who think that the rocket that will enable travel to an inflatable space habitat will be created by 2010. Three surveys were not included in the final count for this question; one of the interviewees did not answer this question; one interviewee answered the question with maybe

(this answer was not one of the two possible answers that were instructed to be circled); one interviewee was sixteen years old (she did not belong to the explored market of age eighteen and up).

Table 23 – Frequency distribution – Travel to an inflatable space habitat by 2010

A Las Vegas entrepreneur has received approval for an inflatable space habitat. He has offered a $50 million prize for anyone who can create a rocket to reach the habitat (about 350 miles up) – without government support. Do you think this will happen by 2010?	N	%
Yes	125	54.82
No	103	45.18
Total	228	100

Out of two hundred and twenty-eight interviewees, one hundred and twenty-five interviewees (54.82 %) think that the rocket that will enable travel to an inflatable space habitat will be created by 2010. There were one hundred and three respondents (45.18 %) who do not think that the travel to an inflatable space habitat will be enabled by 2010. The results show that the majority of respondents believe that the travel to an inflatable space habitat will be possible by 2010. (See Table 23)

4.93 Interest in visiting a habitat in space

Two hundred and thirty surveys were analyzed in order to measure the number of respondents who would visit a habitat in space, cost aside. One survey was not included in the

final count for this question: one interviewee was sixteen years old (she did not belong to the explored market of age eighteen and up).

Table 24 – Frequency distribution – interest in visiting a habitat in space

Cost aside, would you visit a habitat in space?	N	%
Yes	108	46.96
Maybe	39	16.96
No	83	36.09
Total	230	100

Out of two hundred and thirty interviewees, one hundred and eight interviewees (46.96 %) would visit a habitat in space, cost aside; eighty-three respondents (36.09 %) would not visit the habitat in space, cost aside. There were thirty-nine respondents (16.96 %) who would maybe like to visit the habitat in space, cost aside.

The results show that the majority would visit a habitat in space, cost aside. Almost half of all the respondents would visit a habitat in space, cost aside. The results also show an opportunity for space tourism entrepreneurs, such as Richard Branson, to potentially reach another 16.96 % of respondents who would maybe like to go to space. (See Table 24)

4.94 Would the crowded quarters (inflatable habitat) make a difference in decision making process to visit a habitat in space

Two hundred and twenty-nine surveys were analyzed in order to measure the number of respondents who would visit a habitat in space even in a bit crowded quarters. Two surveys were

not included in the final count for this question: one interview did not answer the question; one interviewee was sixteen years old (she did not belong to the explored market of age eighteen and up).

Table 25 – Frequency distribution - Would the crowded quarters (inflatable habitat) make a difference in decision making process to visit a habitat in space

Your visit would be in an inflatable habitat perhaps about the size of two oversize Winnebago RVs. Would you want to visit even though the quarters might have six to eight visitors in that space for 72 hours?	N	%
Yes	109	47.60
Maybe	24	10.48
No	96	41.92
Total	229	100

Out of two hundred and twenty-nine interviewees, one hundred and nine interviewees (47.60 %) would visit a habitat in space even in a bit crowded quarters; ninety-six respondents (41.92 %) would not visit the habitat in space in a bit crowded quarters. There were twenty-four respondents (10.48 %) who would maybe like to visit the habitat in space even in a bit crowded quarters.

The results show that the majority (almost half of respondents) would visit a habitat in space even in crowded quarters. The results also show a large percentage of respondents (over 40 %) who would not like to visit a habitat in space, while considering the uncomfortable quarters. There is only a bit over 10 % of respondents who would maybe visit a habitat in space having in mind the conditions of the space vehicle (crowded quarters). (See Table 25)

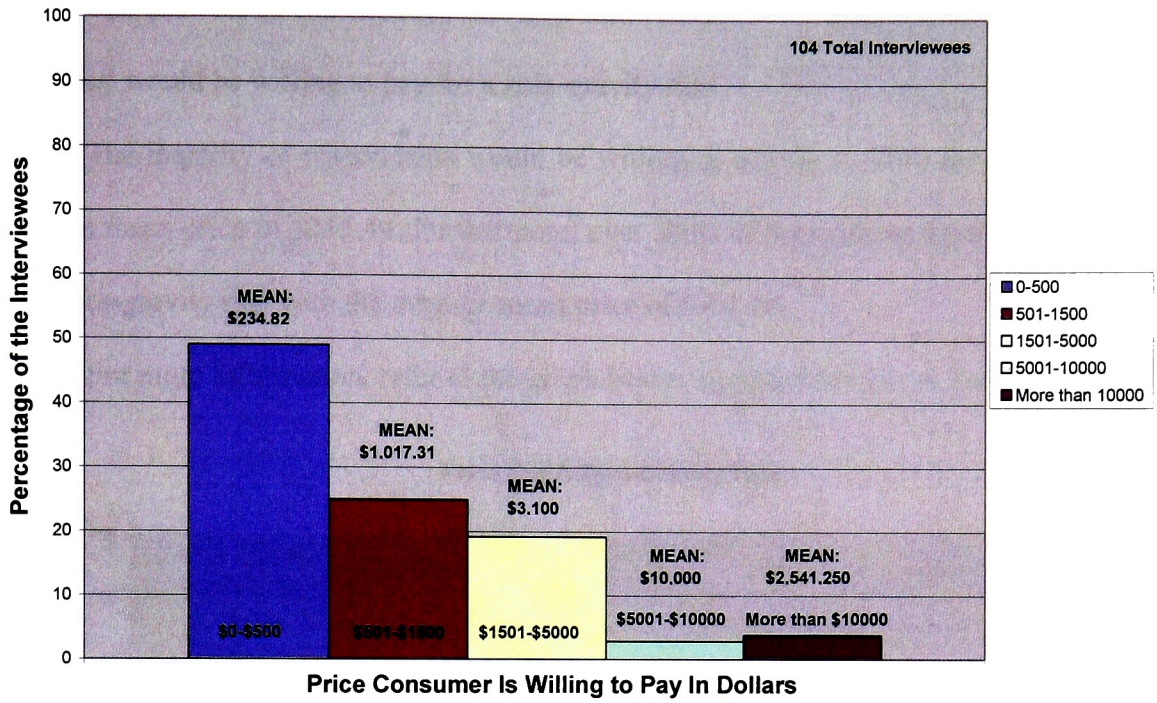
5.1 Amount the interviewees would pay for a zero-gravity ride/ males vs. females

The answers of two hundred and nine interviewees were analyzed in order determine the price they would be willing to pay for a zero-gravity ride. Out of the two hundred and nine interviewees, one-hundred-and-four interviewees were males and one hundred and five interviewees were females. As the graphs show, the percentage of males and females that would pay a given price is similar. (See graphs below)

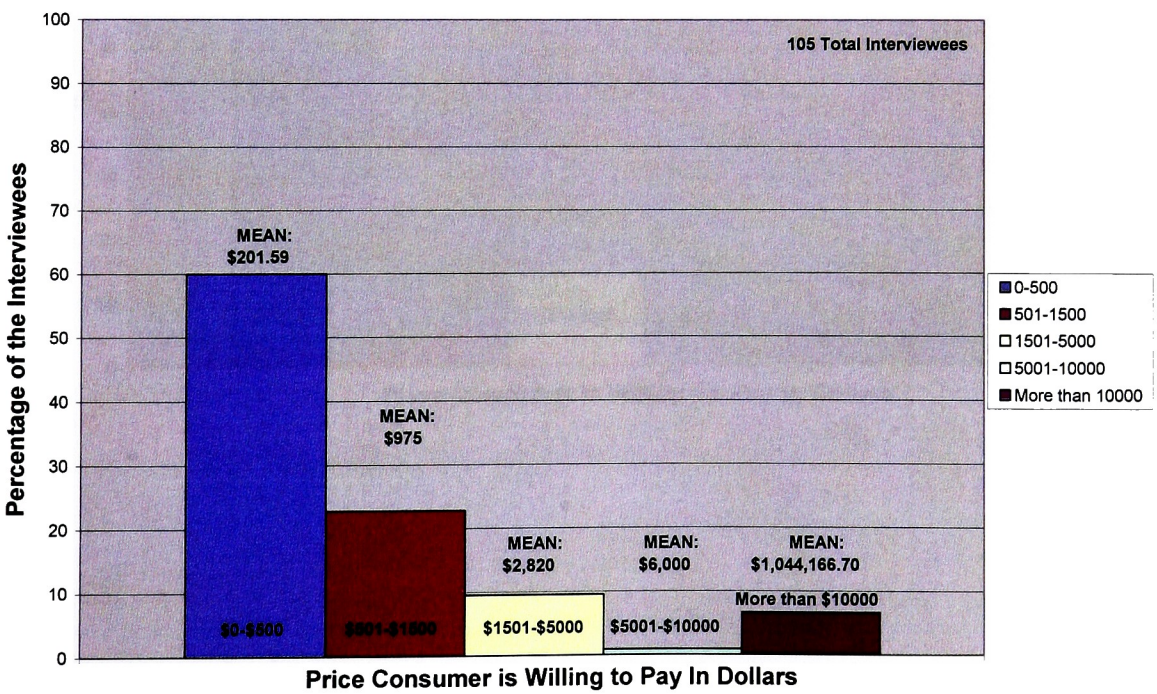
The majority of respondents from both males (almost 50%) and females (60%) would be willing to pay up to $500 for a zero-gravity ride with the mean price of $201.59 for females and the mean price of $234.82 for males. Furthermore, over 20 % of both males and females would pay up to $1,500 for a zero-gravity ride with the average mean price of $975 for females and the average price of $1,017.31 for the males.

The lowest percentage of both males and females is willing to pay up to $10,000 for a zero-gravity ride. Interestingly, there is actually a slightly higher percentage (about 1% higher) of respondents willing to pay more than $10,000 for a zero-gravity ride. For more information, refer to the following graphs. (graph-Price For A Zero-Gravity Ride (MALES) and graph-Price For A Zero-Gravity Ride (FEMALES))

Price For A Zero-Gravity Ride (MALES)



Price For A Zero-Gravity Ride: FEMALES

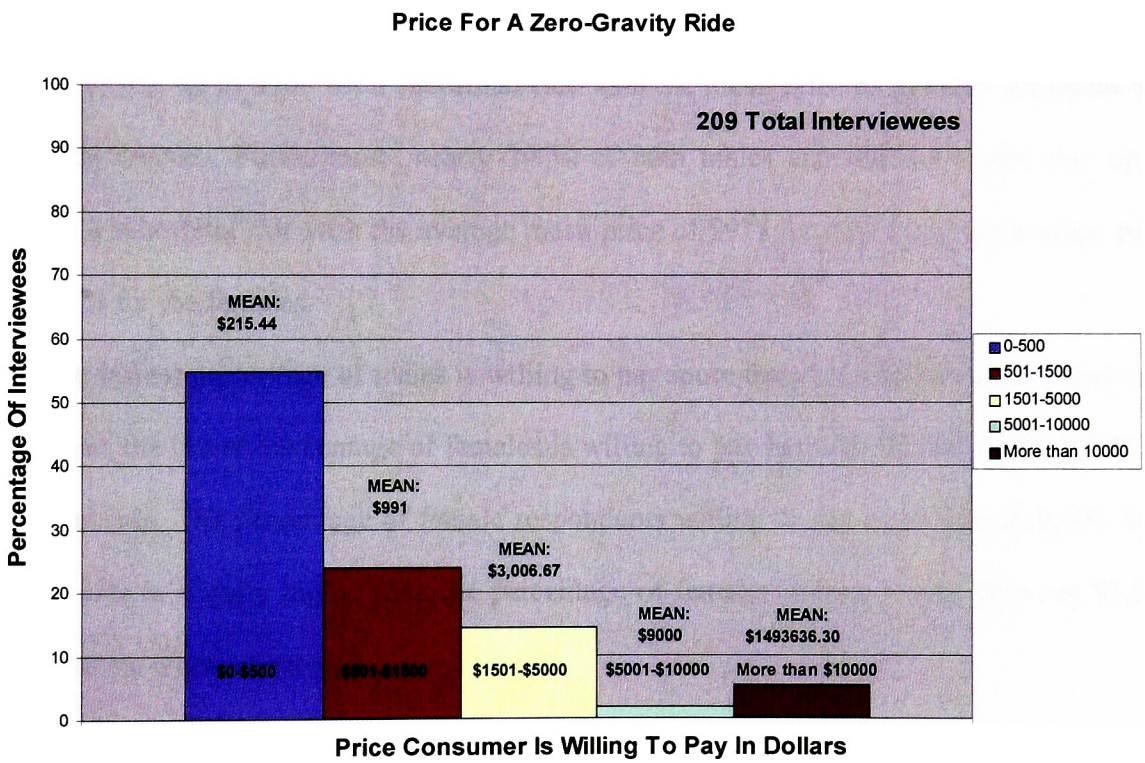


5.2 The total amount the interviewees would pay for a zero-gravity ride

The answers of two hundred and nine interviewees were analyzed in order determine the price they would be willing to pay for a zero-gravity ride.

The majority of respondents would be willing to pay up to $500 for a zero-gravity ride with the mean price of $215.44. Furthermore, over 20 % of respondents would pay up to $1,500 for a zero-gravity ride with the average mean price of $991.00.

For more information, refer to the graph below. (graph-Price For A Zero-Gravity Ride)



5.3 Amount the interviewees would pay for a suborbital ride/ males vs. females

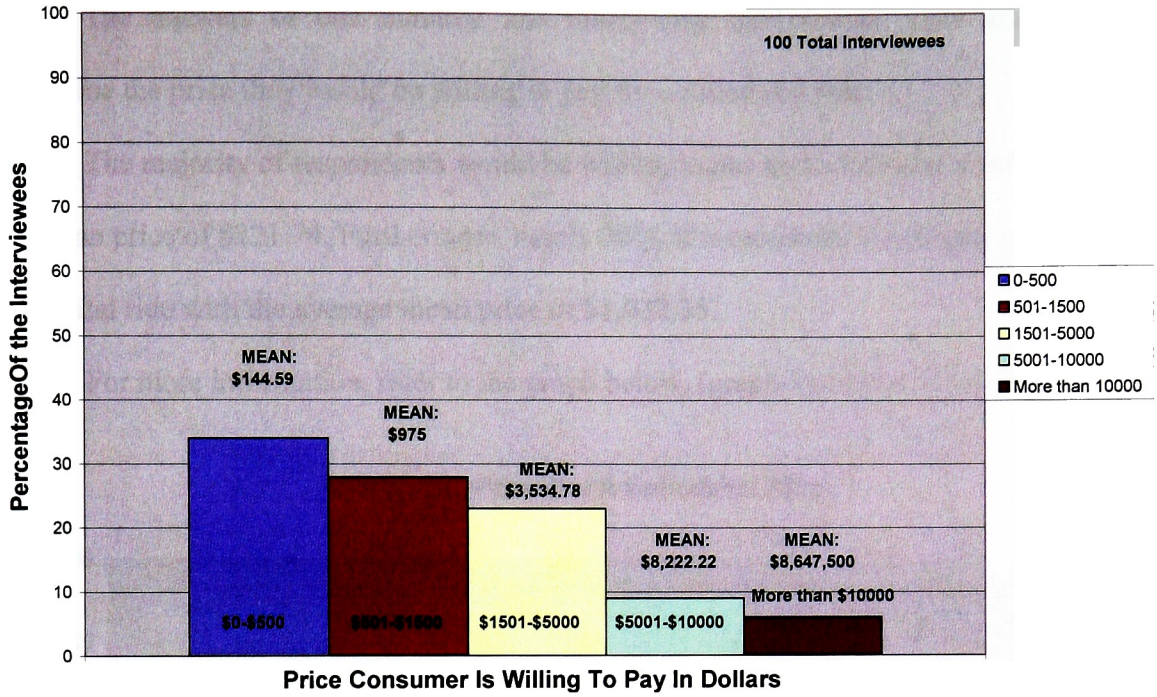
The answers of one hundred and ninety-nine interviewees were analyzed in order determine the price they would be willing to pay for a suborbital ride. Out of the one hundred and ninety-nine interviewees, one hundred interviewees were males and ninety-nine interviewees were females. As the graphs show, the percentage of males and females that would pay a given price is similar. (See graphs below)

The majority of respondents from both males (over 30 %) and females (over 40 %) would be willing to pay up to $500 for a suborbital ride with the mean price of $144.59 for males and $150.56 for females. Furthermore, nearly 30 % of both males and females would pay up to $1,500 for a suborbital ride with the average mean price of $975 for males and the average price of $1,093.18 for the females.

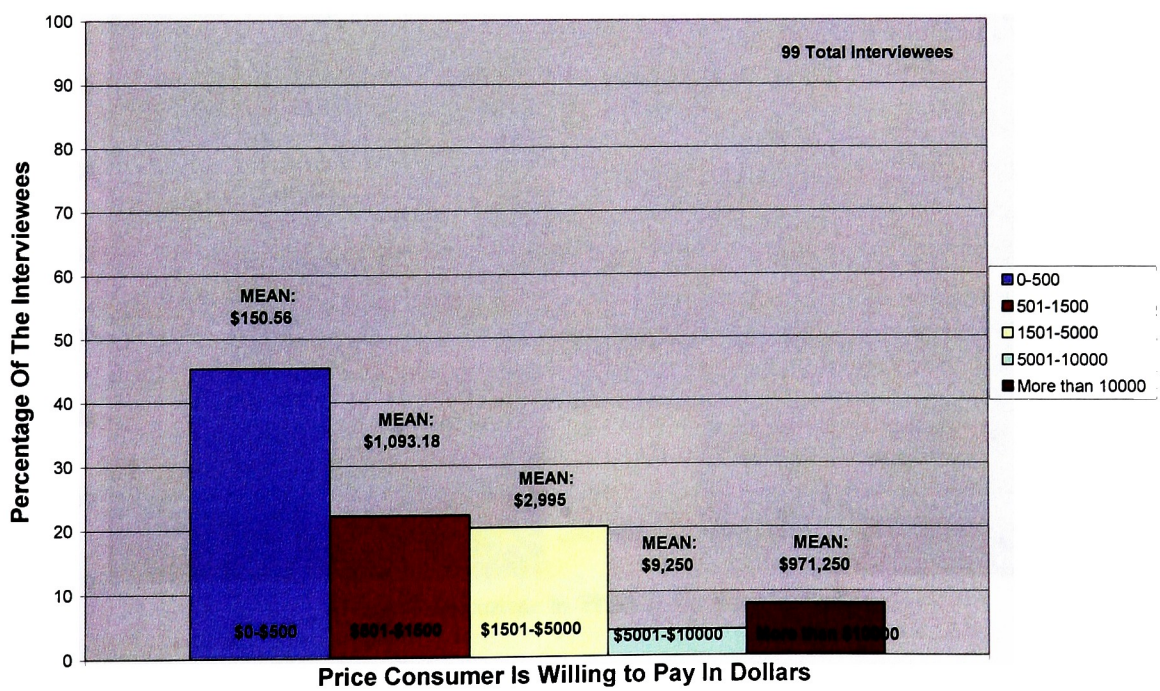
The lowest percentage of males is willing to pay more than $10,000 for a suborbital ride. Interestingly, the lowest percentage of females is willing to pay between $5,001 and $10,000 for a suborbital ride. The percentage of female respondents willing to pay more than $10,000 for a suborbital ride is slightly higher than the percentage of females willing to pay between $5,001 and $10,000 for a suborbital ride.

For more information, refer to the graphs below. (graph-Price For A Suborbital Ride (MALES) and graph-Price For A Suborbital Ride (FEMALES))

Price For a Suborbital Ride: MALES



Price For A Suborbital Ride: FEMALES

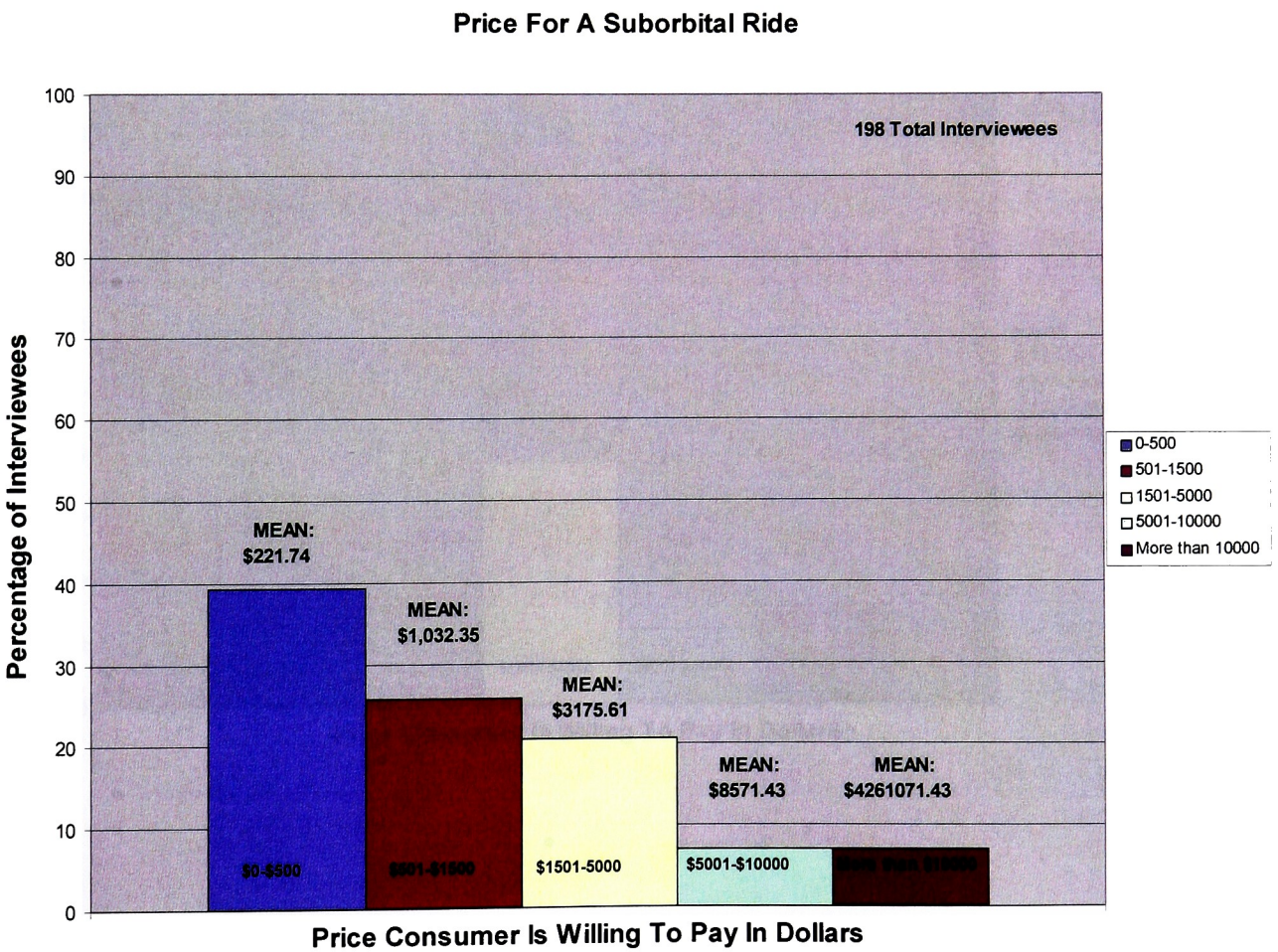


5.4 The total amount the interviewees would pay for a suborbital ride

The answers of one hundred and ninety-nine interviewees were analyzed in order determine the price they would be willing to pay for a suborbital ride.

The majority of respondents would be willing to pay up to $500 for a suborbital ride with the mean price of $221.74. Furthermore, nearly 30% of respondents would pay up to $1,500 for a suborbital ride with the average mean price of $1,032.35.

For more information, refer to the graph below. (graph-Price For A Suborbital Ride)

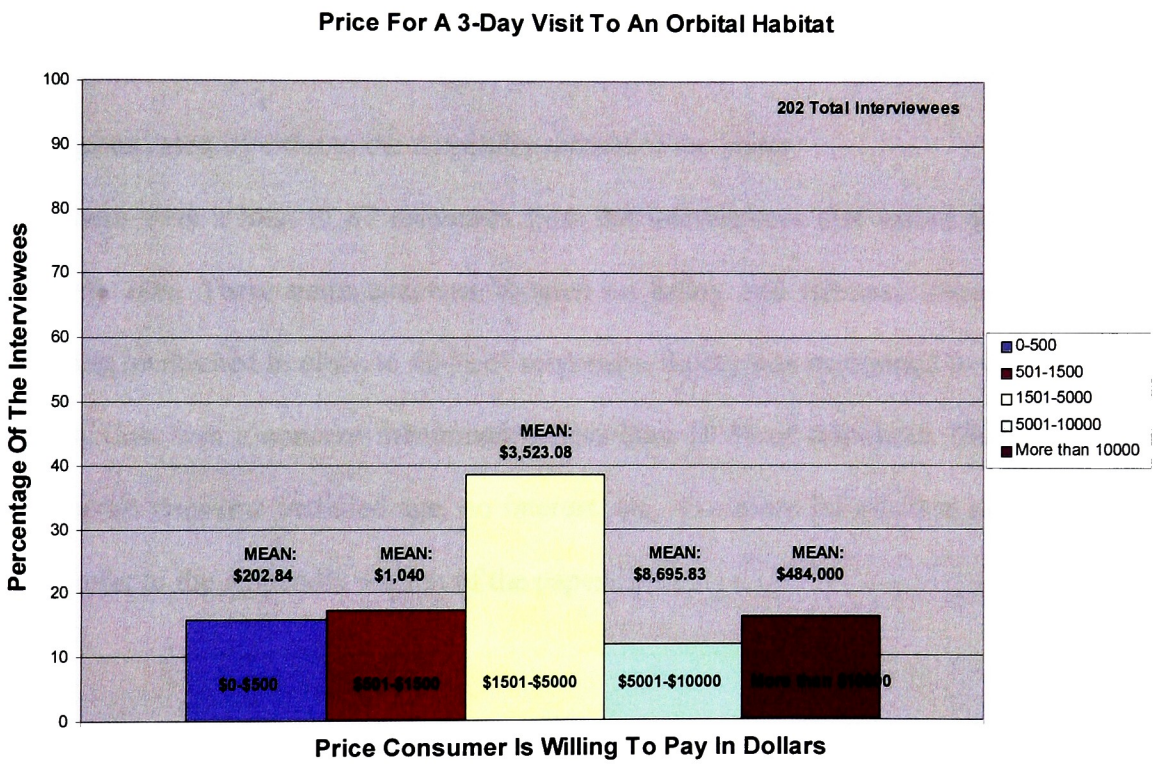


5.5 Amount the interviewees would pay for a 3-day visit to an orbital habitat

The answers of two hundred and two interviewees were analyzed in order determine the price they would be willing to pay for a 3-day visit to an orbital habitat. (See graph below)

The majority of respondents (nearly 40 %) would be willing to pay up to $5,000 for an orbital visit with the mean price of $3,523.08.

For more information, refer to the graph below. (graph-Price For A 3-Day Visit To An Orbital Habitat)

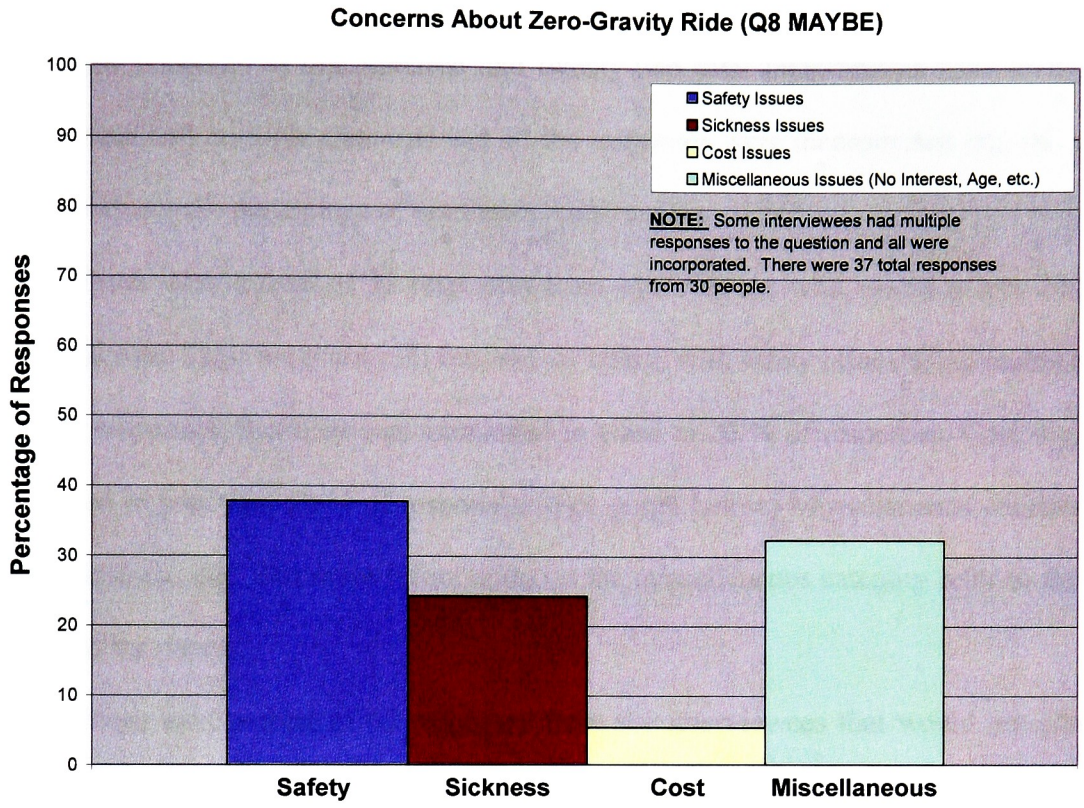


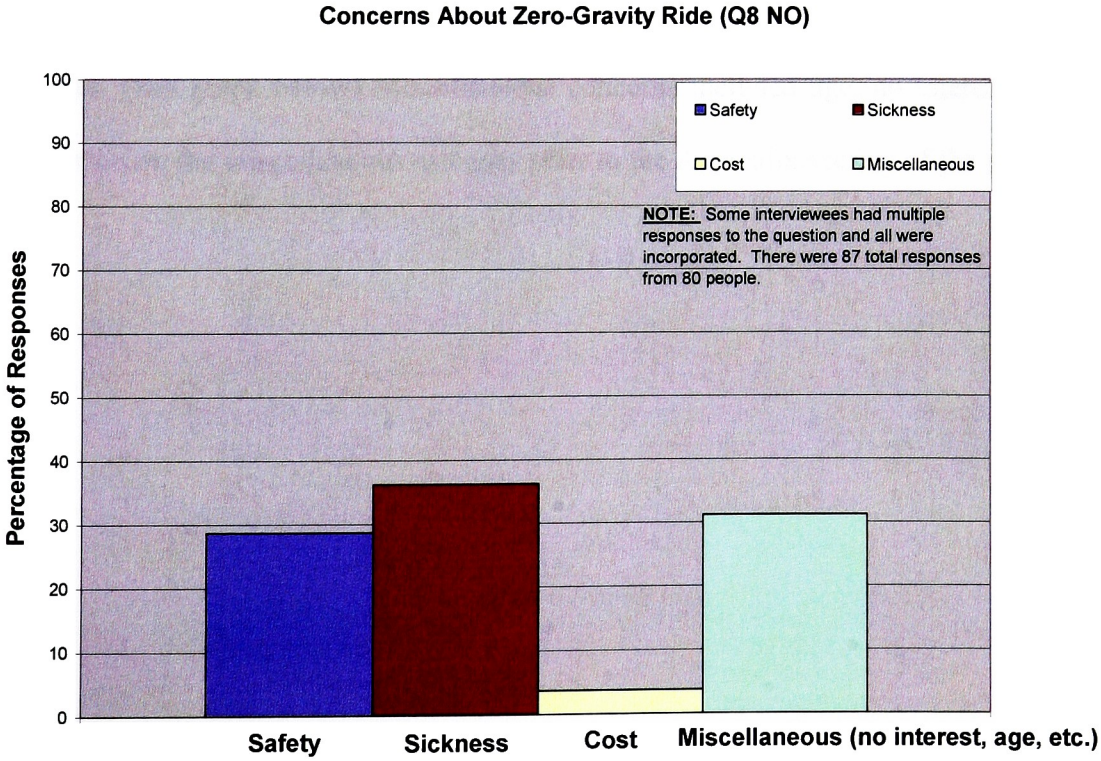
5.6 Concerns about zero-gravity ride

The concerns of one hundred and ten total interviewees were analyzed. Some interviewees had multiple concerns and all the responses were incorporated into the graph. This graph measures the percentage of responses.

There were a total of 37 responses from interviewees who would maybe like to take a zero-gravity ride. Their main concerns focused on safety and sickness issues, with safety issues being mentioned in close to 40% of responses. Sickness was mentioned in close to 30 % of responses. Cost was a concern mentioned in less than 10 % of responses. (See graph below) Miscellaneous concerns included age, no interest, etc. For more information on the miscellaneous category refer to the Appendix section of the paper.

There were a total of 87 responses from the interviewees that would not like to take a zero-gravity ride. There main concerns focused on safety and sickness issues, with sickness issues being mentioned in close to 40 % of responses. Safety was mentioned in close to 30 % of responses. Cost was a concern mentioned in less than 10 % of responses. (See graph below) Miscellaneous concerns included age, no interest, etc. For more information on miscellaneous category refer to the Appendix section of the paper.


Concerns About Zero-Gravity Ride (Q8 MAYBE)
Percentage of Responses
100
90
80
70
60
50
40
30
20
10
0
Safety Issues
Sickness Issues
Cost Issues
Miscellaneous Issues (No Interest, Age, etc.)
NOTE: Some interviewees had multiple responses to the question and all were incorporated. There were 37 total responses from 30 people.
Safety
Sickness
Cost
Miscellaneous


Concerns About Zero-Gravity Ride (Q8 NO)
Percentage of Responses
100
90
80
70
60
50
40
30
20
10
0
Safety
Sickness
Cost
Miscellaneous
NOTE: Some interviewees had multiple responses to the question and all were incorporated. There were 87 total responses from 80 people.
Safety
Sickness
Cost
Miscellaneous (no interest, age, etc.)

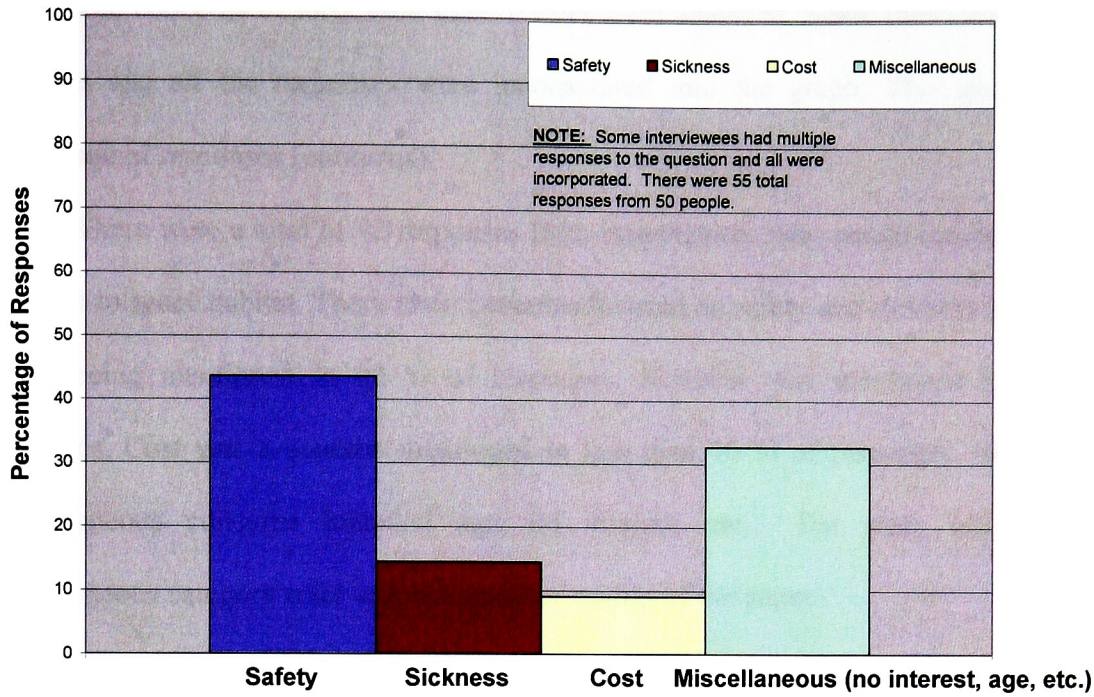
9.7 Concerns about suborbital ride

The concerns of one hundred and twenty-two total interviewees were analyzed. Some interviewees had multiple concerns and all the responses were incorporated into the graph. This graph measures the percentage of responses (concerns).

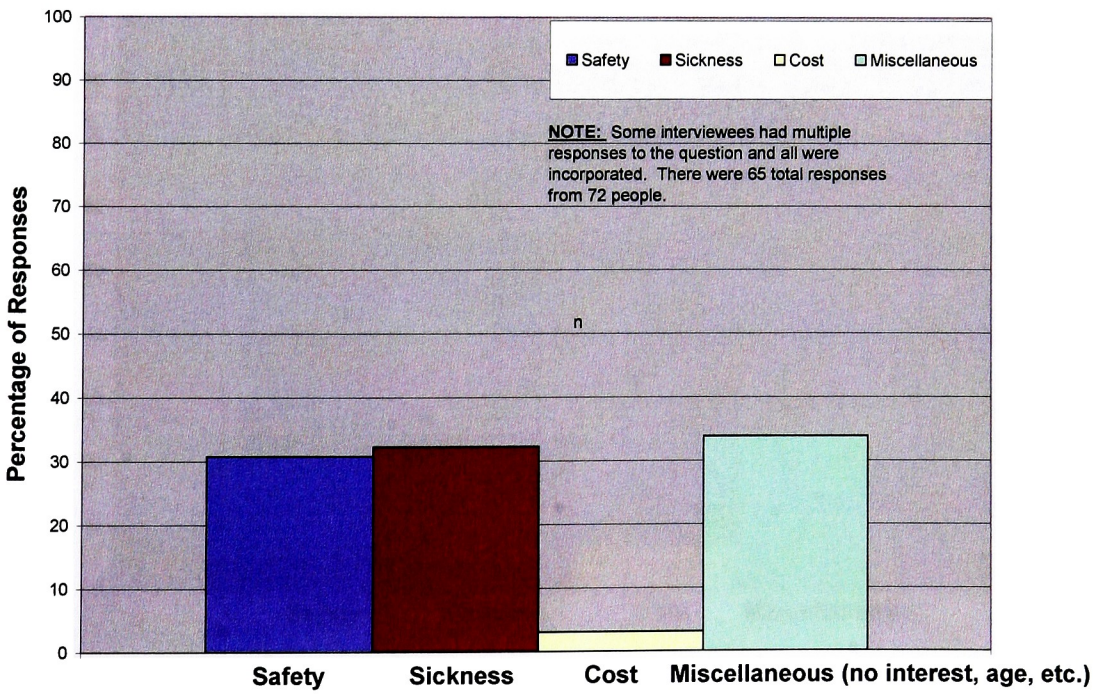
There were a total of 55 responses from interviewees who would maybe like to take a suborbital ride. Their main concern focused on safety, with safety issues being mentioned in over 40 % of responses. Sickness was mentioned in close to 20 % of responses. Cost was a concern mentioned in less than 10 % of responses. (See graph below) Miscellaneous concerns included age, no interest, etc. For more information on the miscellaneous category refer to the Appendix section of the paper.

There were a total of 65 responses from the interviewees that would not like to take a suborbital ride. Their main concerns focused on safety and sickness issues, with both issues being mentioned in over 30 % of responses. Cost was a concern mentioned in less than 10 % of responses. (See graph below) Miscellaneous concerns included age, no interest, etc. For more information on the miscellaneous category refer to the Appendix section of the paper.

Concerns About Suborbital Ride (Q12 MAYBE)



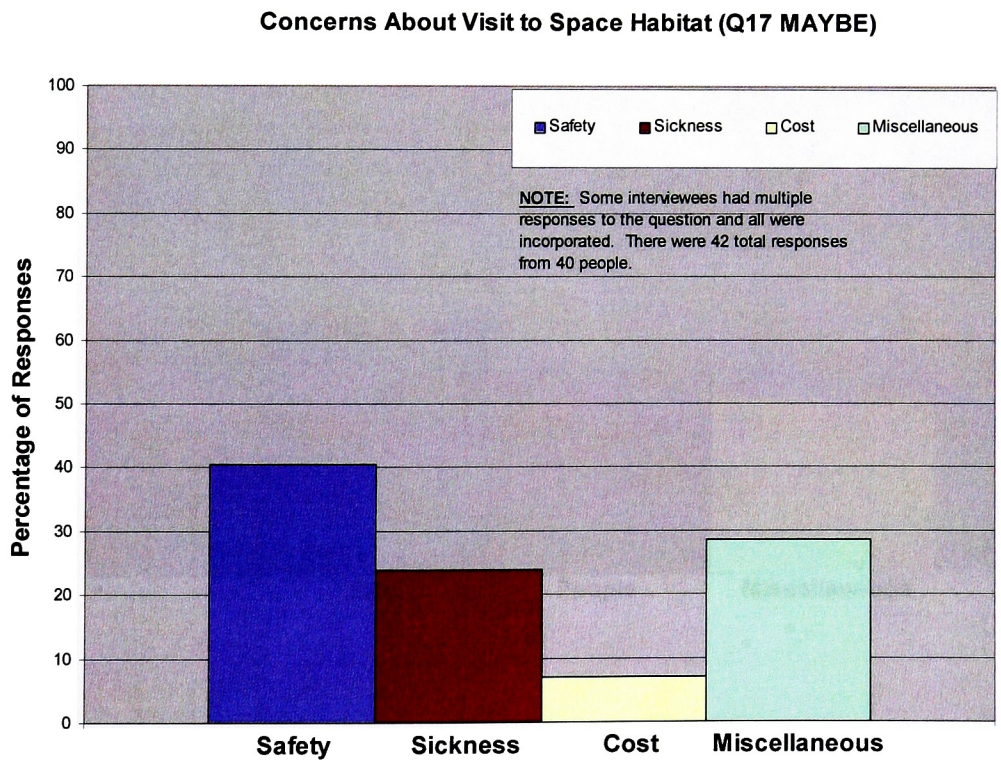
Concerns About Suborbital Ride (Q12 NO)



5.8 Concerns about 3-day visit to space habitat

The concerns of forty total interviewees were analyzed. Some interviewees had multiple concerns and all the responses were incorporated into the graph. This graph measures the percentage of responses (concerns).

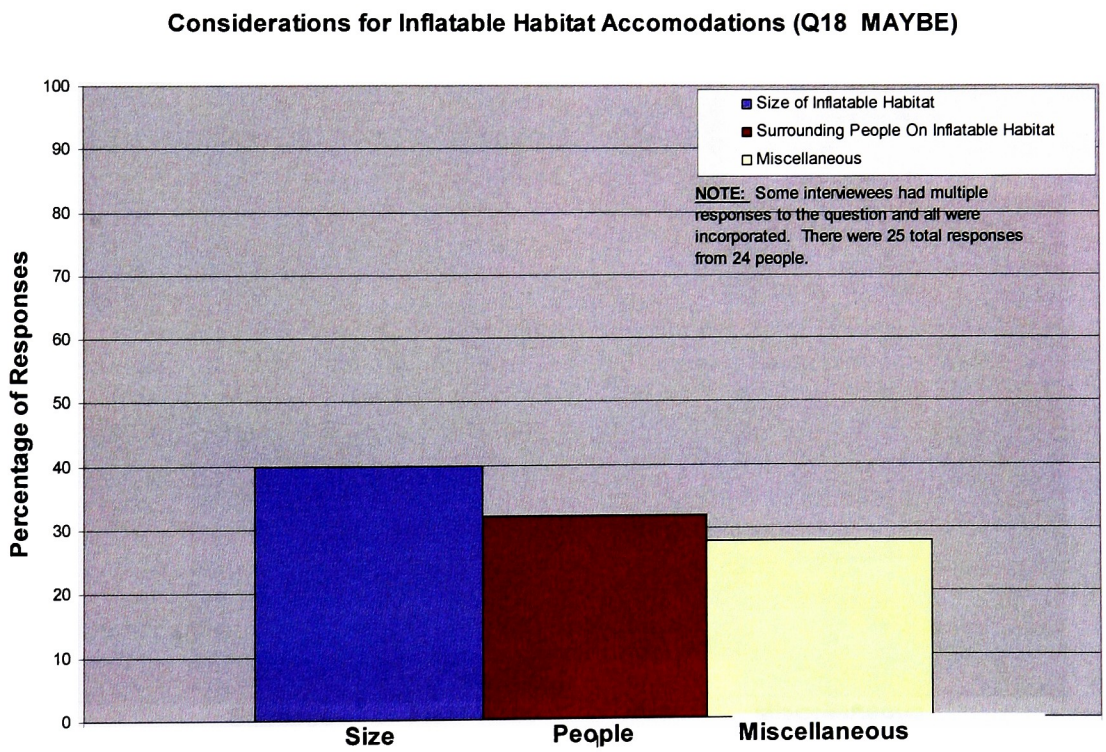
There were a total of 42 responses from interviewees who would maybe like to take a 3-day visit to space habitat. There main concerns focused on safety and sickness issues, with safety issues being mentioned in 40 % of responses. Sickness was mentioned in over 30 % of responses. Cost was a concern mentioned in less than 10 % of responses. (See graph below) Miscellaneous concerns included age, no interest, etc. For more information on the miscellaneous category refer to the Appendix section of the paper.



5.9 Considerations for inflatable habitat accommodations

The considerations for inflatable habitat accommodations of twenty-two interviewees were analyzed. Some interviewees had multiple considerations and all the responses were incorporated into the graph. This graph measures the percentage of responses (considerations).

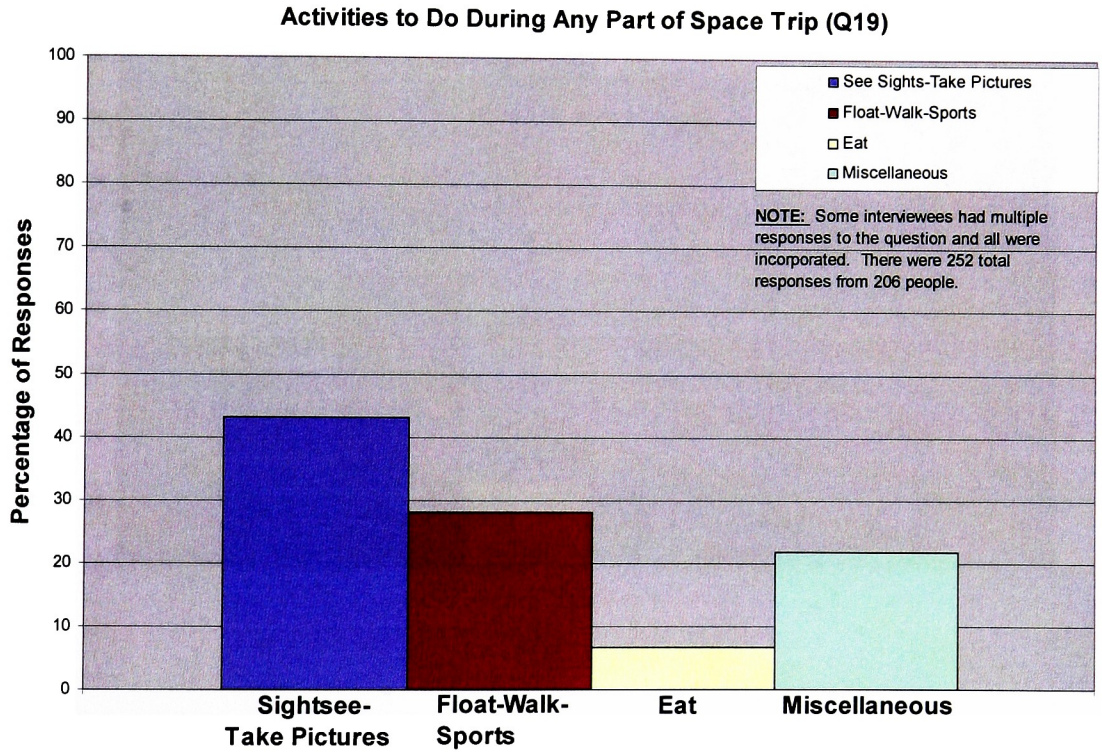
There were a total of 25 responses from interviewees who would maybe spend a 3-day visit at the space habitat. Their main concerns focused on the size of the habitat and the people in the habitat. (See graph below) For more information on the miscellaneous category refer to the Appendix section of the paper.



6.1 Activities to do during any part of space trip

The interests of two hundred and six interviewees were analyzed. Some interviewees had multiple interests and all the responses were incorporated into the graph. This graph measures the percentage of responses (various interests, activities that the interviewees would like to do in space).

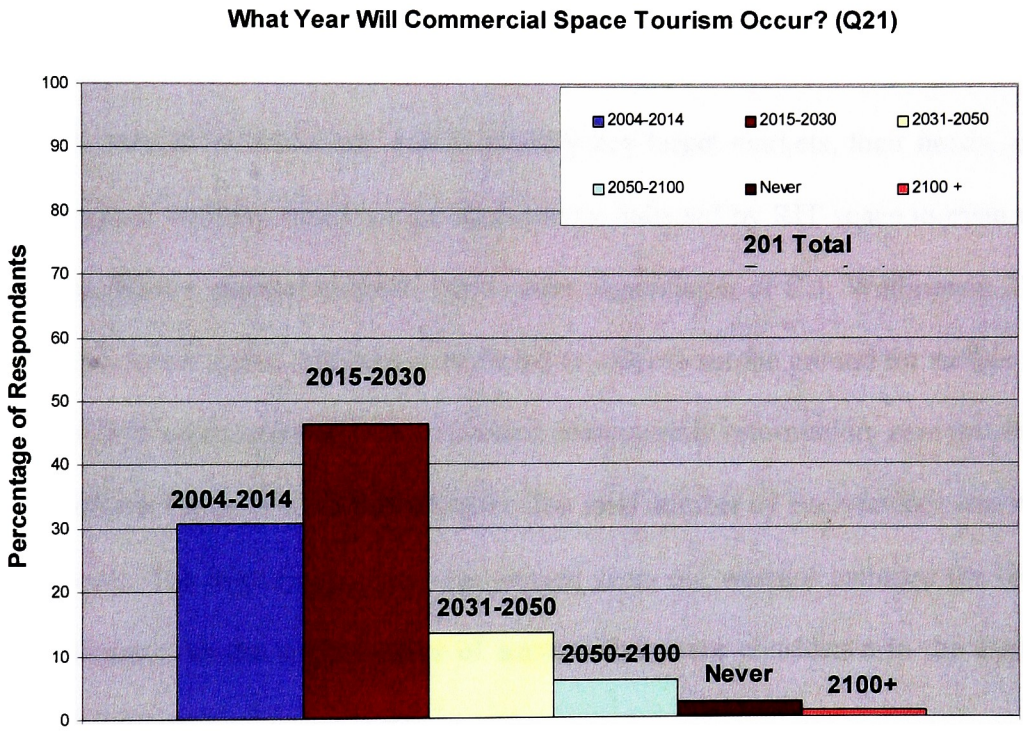
There were a total of 252 responses from the interviewees. Their main interests focused on sightseeing, taking pictures, floating, walking, and sports. (See graph below) For more information on the miscellaneous category refer to the Appendix section of the paper.



6.2 What year will commercial space tourism occur?

The responses of two hundred and one interviewees were analyzed for what year the interviewees believed space tourism would occur. Some interviewees listed a year range. In these cases the year at the high end of the range was utilized in the graphed data.

Almost 80 % of the interviewees believe commercial space tourism will occur by the year 2030. For more information please refer to the graph below.



6.3 Conclusions and Recommendations

The future of space tourism has a great potential. NASA is planning new vehicles for the upcoming decades (Van Pelt, 2005, p. 35). Space hotels are being envisioned in the future as well (Van Pelt, 2005, p. 146). There is a huge need for space tourism market research (Crouch, 2001, p. 215).

Even though the economic potential of space tourism looks great, the future of business, investment, market needs and wants, and employment opportunities in this industry are unknown.

The purpose of this study was to identify key target markets, their needs, and wants, in regards to space tourism, based on the interviews conducted by RIT space tourism development class in the Winter quarter of 2004/ 2005 under supervision of C.J. Wallington. The data was collected, but never tallied and further explored in order to set the ground for further research.

The RIT space tourism survey revealed demographic information, zero gravity, suborbital flights, and Low Earth Orbit (LEO) habitats. The total number of interviewees was two-hundred-and-thirty-one. The interviewee who was sixteen years old was not included the final count for all the questions, so the total number of surveys that were considered in the analysis is two-hundred-and-thirty.

Over 50 % of participants were females and 49.56 % of participants were males. The highest percentage of participants was in the age bracket of eighteen to thirty with 38.6 %. The next highest percentage was in the age bracket of thirty-one to forty-five with 30.25 % of participants. There were less than 10 % of participants who were over sixty.

The relationship between the sample's demographics and the answers to questions about zero-gravity and suborbital flights were explored. The reason for analyzing this relationship is

because zero-gravity and suborbital flights have a great chance of being completed in the next few years, so this information could be of great importance.

The percentage of males who have heard of the zero-gravity flights is higher than the percentage of females who have heard of zero-gravity flights by close to 8%. The largest percentage of interviewees, who are in the age range of eighteen to thirty, have heard of zero-gravity flights. The interviewees in the age range of thirty-one to forty-five and the age range of forty-six to sixty have a higher percentage of the respondents who have heard of zero-gravity flights than those who have not heard of it.

The highest percentage of respondents with a bachelor's degree have heard of zero-gravity flights. The interviewees with a graduate degree, high school diploma, or some college experience have a higher percentage of the respondents who have heard of zero-gravity flights than of those who have not heard of these flights.

The percentage of males willing to take a zero-gravity ride was higher than the percentage of females willing to take this ride. The percentage of interviewees, who were up to forty-five years of age and willing to go to take a zero-gravity ride, was higher than the percentage of those respondents who were not willing to take this ride. The percentage of interviewees with a bachelor's degree willing to take a zero-gravity ride was the same as those respondents with some college experience.

The percentage of males who have heard of the suborbital flights is higher than the percentage of females who have heard of the suborbital flights by close to 7 %. The largest percentage of interviewees, who are in the age range of thirty-one to forty-five, have heard of suborbital flights.

The highest percentage of respondents with a bachelor's degree has heard of suborbital flights. The interviewees with a graduate degree, high school diploma, or some college experience have a higher percentage of the respondents who have heard of suborbital flights than of those who have not heard of these flights.

The percentage of males willing to take a suborbital flight was higher than the percentage of females willing to take this ride. The percentage of interviewees, who were up to forty-five years of age and willing to go to take a suborbital flight, was higher than the percentage of those respondents who were not willing to take this ride. The percentage of interviewees with some college experience willing to take a suborbital ride was higher than of those respondents with Bachelor's degree.

The majority of respondents from both males (almost 50 %) and females (60 %) would be willing to pay up to $500 for a zero-gravity ride with the mean price of $201.59 for females and the mean price of $234.82 for males. Furthermore, over 20 % of both males and females would pay up to $1,500 for a zero-gravity ride with the average mean price of $975 for females and the average price of $1,017.31 for the males.

The majority of respondents from both males (over 30 %) and females (over 40 %) would be willing to pay up to $500 for a suborbital ride with the mean price of $144.59 for males and $150.56 for females. Furthermore, nearly 30 % of both males and females would pay up to $1,500 for a suborbital ride with the average mean price of $975 for males and the average price of $1,093.18 for the females.

The majority of respondents (nearly 40 %) would be willing to pay up to $5,000 for an orbital visit with the mean price of $3,523.08.

The concerns of one hundred and ten interviewees, who would maybe like to take a zero-gravity-ride and those who would not want to take the ride, were analyzed. Some interviewees had multiple concerns and all the responses were incorporated into a graph. This graph measures the percentage of responses. The interviewees' main concerns focused on safety and sickness issues. The same type of result was encountered with the concerns of the interviewees in regards to suborbital flights and 3-day visits to space habitat.

When considering traveling to space in an inflatable habitat, the interviewees expressed mainly concern for the size of the habitat and their possible issues with the people around them. The interviewees identified sightseeing, taking pictures, floating, walking, and sports as the main activities they would like to do in space. Most of the interviewees believe that the commercial space tourism will happen by the year of 2030 (almost 80 %).

Continuous space market research is recommended, so that the most accurate and recent information can be available. The further experimentation and the possibility of creating a new thesis with another RIT market survey is recommended so that the new results can be compared with the 2004/ 2005 market survey. Another way of researching the space tourism market needs and wants is through in depth interviews with space tourism experts and leaders. This would be an idea of another new project for an RIT student. There are tremendous possibilities in the market research area with a potential global impact.

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APPENDIX A

Interviewer's Name_____ 0622 534/20042 – 3.1

Space Tourism Development

Interview Date _____ 14 December 2004

Market Survey

Demographic Questions
1. Name of person interviewed (optional, only for interviewer use)
2. Town/State (also optional)
3. Sex ☐ Male ☐ Female
4. Age ☐ 18-30 ☐ 31-45 ☐ 46-60 ☐ over 60
5. Education ☐ Less than high school ☐ High school ☐ Some college ☐ Bachelor's ☐ Graduate
6. Occupation

Zero Gravity Questions
7. Have you heard of the zero-gravity, weightlessness flights–conducted by NASA or others? ☐ Yes ☐ No If the answer is No, explain the zero-gravity flights in which the plane flies in a path like a roller coaster and passengers are weightless for 20-30 seconds as the plane reaches its peak.
8. Cost aside, would you take a ride like that? ☐ Yes ☐ Maybe ☐ No If the answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?
9. Assuming that you were willing to go, what would you pay (exclusive of costs like travel to the site and accommodations) for a zero-gravity ride lasting at least an hour and/or having a dozen short weightless periods?

Suborbital Questions
10. Have you heard of the Ansari X-Prize and/or suborbital flights to the edge of space (about 60 miles)? ☐ Yes ☐ No If the answer is No, explain the concept of a suborbital flight that reaches the edge of space, offers 3 to 4 minutes of weightlessness, and then returns to earth.
11. Richard Branson, president of Virgin Airways and star of his own reality show, has announced that he will offer suborbital flights in about 3 years. Do you think that he will be able to accomplish this in 3 years? ☐ Yes ☐ No If you answered No, how long (if ever) do you think it will be before such rides are offered?

12. Cost aside, would you take a ride like that? ☐ Yes ☐ Maybe ☐ No
If your answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?

Suborbital Questions (cont'd)

13. You would be in a smallish, 5 to 7-passenger cabin with the pilot for about two hours (much like a very short passenger plane ride). Would you want to ride even though the quarters might be a bit crowded?
☐ Yes ☐ No

14. Assuming that you were willing to go, what would you pay (exclusive of costs like travel to the site and accommodations) for a suborbital ride lasting about 2 hours?

Habitat Questions

15. Have you heard of the space tourists, Dennis Tito and Mark Shuttleworth who visited the International Space Station for one week?
☐ Yes ☐ No

If the answer is No, describe how Tito and Shuttleworth each paid about $20 million to ride a Russian rocket and visit the International Space Station. Point out that they were weightless for a week and the ride starts with about 12 minutes of strong vibration and heavy gravity. Explain that there are entrepreneurs who want to put up a private space habitat–like a small space hotel–which people could visit.

16. A Las Vegas entrepreneur has received approval for an inflatable space habitat. He has offered a $50 million prize for anyone who can create a rocket to reach the habitat (about 350 miles up)-without government support. Do you think this will happen by 2010? ☐ Yes ☐ No

If you answered No, how long (if ever) do you think it will be before a visit to a space habitat is offered as a tourist destination?

17. Cost aside, would you visit a habitat in space? ☐ Yes ☐ Maybe ☐ No

If the answer is Maybe, what are your concerns about such a visit and what would it take to make you consider a visit?

18. Your visit would be in an inflatable habitat perhaps about the size of two oversize Winnebago RVs. Would you want to visit even though the quarters might have six to eight visitors in that space for 72 hours?
☐ Yes ☐ Maybe ☐ No
If you answered Maybe, what are some of your considerations about living accommodations?

19. What would you like to do while you are there or during any part of the trip?

20. Assuming that you were willing to go, what would you pay for the 3-day visit to an orbital habitat?

21. General Question: When, if ever, do you think commercial space tourism (any one of the three options) will occur?

APPENDIX B

0622 534/20032–3.2
Space Tourism Development
14 December 2004
Market Survey Directions

Directions

The directions for the interview form (3.1) are separate from the actual questions. This will allow me to get all of the interview questions on one sheet of paper–thus making your life a little easier. (I hope.) Here's what you are supposed to do.

Find at least eight people over the age of 18 to interview. Do not use college students. You'll be interviewing them after the break.

Interview the subject and write down his/her answers to the questions on the interview form provided.

If the individual does not know about space tourism, explain the three categories: zero-gravity flights, suborbital flights, and a brief visit to a space habitat. If you explained any of the three, please make a note on the form that you did.

If the person you interview is uncomfortable giving you personal information, especially demographic information, acknowledge the reluctance and move on. Explain that no personal data will be linked to the data. The name requested in question 1 is only so *you* can keep things straight. It is never recorded in the data we gather.

If the individual you interview has any questions or comments related to space tourism development or to the questionnaire (especially the questionnaire) please record those questions.

You should have all of your surveys done by the first class of 2005 (Tuesday, January 4)

APPENDIX C

Table – Frequency distribution – knowledge of zero-gravity flights

Have you heard of the zero-gravity, weightlessness flights conducted by NASA or others?	N	%
Yes	154	66.96
No	76	33.04
Total	230	100

Table – Frequency distribution - interest in taking a zero-gravity ride

Cost aside, would you take a ride like that?	N	%
Yes	122	53.04
Maybe	31	13.48
No	77	33.48
Total	230	100

Table – Frequency distribution – knowledge of suborbital flights and the Ansari X-Prize

Have you heard of the Ansari X-Prize and/or suborbital flights to the edge of space (about 60 miles)?	N	%
Yes	101	44.10
No	128	55.90
Total	229	100

Table – Frequency distribution – suborbital flights in three years

Possibility of suborbital flights in 3 years?	N	%
Yes	127	55.70
No	101	44.30
Total	228	100

Table – Frequency distribution – interest in taking suborbital flights

Cost aside, would you take a ride like that?	N	%
Yes	108	47.16
Maybe	49	21.40
No	72	31.44
Total	229	100

Table – Frequency distribution – would the crowded quarters make a difference in decision making process to take a suborbital ride or not

Would you want to ride even though the quarters might be a bit crowded?	N	%
Yes	116	50.44
No	114	49.56
Total	230	100

APPENDIX D

RIT Market Survey (December 14, 2004) – question 8 / gender

8. Cost aside, would you take a ride like that? ☐ Yes ☐ Maybe ☐ No
If the answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?

Question 8 / gender

If the answer is Maybe		
MALE		FEMALE
safety + air sickness		would like to see success rate, give time to work out the glitches
seems a bit dangerous now, once it becomes more routine + reasonably priced, then yes		getting sick; feeling like it was a rollercoaster
if it was safe and I felt the desire to		it's not interesting; dangerous
safety, getting sick		it sounds scary
it'll be popular for a year or two until the next craze comes along. To be able to live and work there		it will have to be safe, humans mess up too much
safety		no answer
afraid of heights and crashing		airsickness
new idea and flight. Don't want to be a test dummy		change my age to thirty
safety of the ride		I'm concerned I'd get sick
safety, cost. Such a ride would have to be fairly safe and very cheap		being nauseous on the trip. Counseling info sessions about the experience would help.
motion sickness		being secure in knowing the flight would be safe is important
		too short and risky
		no fun - should be longer
		she's concerned with troubles occurring and not making it back to earth
		not sure if be comfortable with feeling
		too old?
		it would be kind of scary
		a little scared. If more people go up there
		might get dizzy

		too early to tell
Male		Female
		as its not popular to space tour I doubt what it would be like so I would like to take a ride after getting the ability to ride from the public

Question 8/ gender

If the answer is No		
MALE		FEMALE
the disasters they've had in flight		equilibrium problems
vomiting, nothing		weak stomach
safety of flight		don't think I would like the feeling
not ready to die		the weightlessness and I don't like flying
no answer		what's the point
too much life risk		safety
don't like roller coasters		safety; not interested
no interest in space travel. Concern about safety issues		afraid she'd get sick, doesn't like heights, if she gets aid a large amount
fear of the unknown. Nothing matters		I don't see why I should make myself uncomfortable. I feel fine on ground
too brief an experience to be worth the money. Low cost and a good safety record would be necessary		afraid of up and down motion of airplane; fear of flying
safety and no interest		safety of such flight. Heights not being a factor.
afraid of heights		terrified of heights
no interest		don't like roller coasters; too scared
too short and too expensive. Not fan either.		motion sickness. If we're drugged during flight

motion sickness, can't feel sickness		space sickness. If my partner could be there with me.
prove that it's safe		too dangerous; several years of successful operation of the flights and a good safety record would help.
too risky; would rather see pictures and hear about it, sick easy		too much motion and potential for motion sickness
no desire to go		concerns are for physical well being - doesn't want to vomit - no specific amenities would convince me to take trip
too high		no interest
dangerous		no answer
not worthwhile to experience for citizen. No desire to be weightless for fun.		afraid of crashing
motion sickness		nothing; not interested
not interested		too modern; too old to go.
no answer		dizzy
I don't want to die prematurely		doesn't like flying
look what happened to 1987 and 1988 and also two years ago		getting sick
budget		I'm afraid of heights and would rather have my feet on the ground.
afraid of high speed - not sure what will happen, he said he watched TV news and think it is good for scientists		it would be dangerous
air sickness		nausea; to be paid a lot
no answer		I don't trust NASA
no answer		my age
		sickness
		not worth simulating
		I'm scared of everything I really don't know about. I'm also afraid of roller coasters

		I have inner ear problem with vertigo
		motion sickness.
		health safety. The only thing that would make me more willing to try would be assured safety
		she said, look at what happened two years ago
		its not her concerns, but probably for next 2 or 3 generations
		I'd rather look forward to today rather than in the future. It is too early to tell.
		look at what happened two years ago
		no answer
		no answer
		no question
		no question
		no question

APPENDIX E

RIT Market Survey (December 14, 2004) - question 8 / age groups:

8. Cost aside, would you take a ride like that? □ Yes □ Maybe □ No
If the answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?

Question 8 / age groups

18-30	31-45	46-60	Over 60
No	No	No	No
what's the point	weak stomach	terrified of heights	equilibrium problems
safety not interested	I don't think I would like the feeling	don't like roller coasters	safety of flight
not ready to die	the weightlessness and I don't like flying	don't like roller coasters; too scared	safety and no interest
no answer	the disasters they've had in flight	no interest in space travel. Concern about safety issues.	no interest
space sickness. If my partner could be there with me.	safety	motion sickness. If we're drugged during the flight.	no answer
afraid of heights	afraid she'd get sick, doesn't like heights. If she gets paid a large amount.	too brief an experience to be worth the money. Low cost and a good safety record would be necessary.	no interest
too short and too expensive; not very fun either	vomiting; nothing	too much motion and potential for motion sickness.	too modern; too old to go.
motion sickness; can't feel sickness	I don't see why I should make myself uncomfortable. I feel fine on the ground.	concerns are for physical well being (doesn't want to vomit) no specific amenities would convince me to take the trip.	no desire to go.
nothing; not interested	too much life risk	afraid of crashing	dizzy
too risky; would rather see pictures and hear about it. Sick easy.	afraid of up and down motion of airplane-fear of falling	prove that its safe	my age

I'm afraid of heights and I would rather have my feet on the ground.	Safe times of such flight-heights not being a factor	doesn't like flying	no answer
dangerous	fear of the unknown. Nothing matters	too high	no question
not worth simulating	too dangerous. Several years of successful operation of the flights and a good safety record would help.	getting sick	
not interested	sickness	it might be dangerous	
health safety. The only thing that would make me more willing to try would be assured safety.	motion sickness	nausea- to be paid a lot	
I don't want to die prematurely	no answer	not worthwhile to experience for citizen. No desire to be weightless for fun.	
look what happened in 1987 and 1988 and also 2 years ago	she said, look at what happened 2 years ago	doesn't trust NASA	
budget	afraid of high speed, not sure of what will it happen, he said he watch TV news and think it is good for scientists.	I'm scared of everything I really don't know about. I'm also afraid of roller coasters.	
I'd rather look forward to today than in the future-it is too early to tell.	it is not her concerns, but probably for the next 2 or 3 generations	I have inner ear problem with vertigo.	
no question	no answer	motion sickness	
no question		look at what happened 2 years ago.	
		air sickness	
		no answer	
		no answer	

Question 8 / age groups

18-30	31-45	46-60	over 60
MAYBE	MAYBE	MAYBE	MAYBE
getting sick - feeling like it was a rollercoaster	seems a bit dangerous now, once it seems a bit more routine and reasonably priced, then yes.	safety and airsickness	if it was safe and I felt the desire to.
its not interesting, dangerous	would like to see success rate. Give time to work out the glitches.	it sounds scary	change my age to 30
it will have to be safe; humans mess up too much	no answer	safety, getting sick	motion sickness
I'm concerned I would get sick	airsickness	being secure in knowing that the flight would be safe is important	
It'll be popular for a year of two until the next craze comes along	being nauseous on trip. Counseling info sessions about the experience would help.	afraid of heights and crashing	
too short and risky	safety	too old?	
no fun; should be longer	not sure if be comfortable with feeling	it would be kind of scary	
new idea in flight. Don't want to be a test dummy	safety of the ride	a little scared. If more people go up there.	
safety, cost. Such a ride would have to be cheap and fairly safe.		might get dizzy	
too early to tell		as it is not popular - the space tour - I doubt what will be like. So I would like to take a ride after getting the ability from the public.	

APPENDIX F

RIT Market Survey (December 14, 2004) - question 8 / age groups:

8. Cost aside, would you take a ride like that? □ Yes □ Maybe □ No
If the answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?

Question 8 / education levels

Less than HS	HS	Some College
No	No	No
I'm scared of everything that I really don't know about. I'm also afraid of rollercoaster	equilibrium problem	don't think I would like the feeling
not interested	space sickness; If my partner could be there with me	the disasters they've had in flight
	too dangerous. Several years of successful operation of the flights and a good safety record would help.	vomiting; nothing
	afraid of heights	safetiness of such flight. Heights not being a factor
	no answer	terrified of heights
	no interest	don't like roller coasters
	too short and too expensive. Not very fun either.	fear of the unknown; nothing matters
	afraid of crashing	too brief an experience to be worth the money. Low cost and a good safety record would be necessary.
	too modern; too old to go.	motion sickness; can't feel sickness
	no desire to go	I'm afraid of heights and I will rather have my feet on the ground.
	dizzy	my age
	doesn't like flying	budget
	getting sick	air sickness

	dangerous	no answer
	not worth stimulating	no question to answer
	afraid of high speed-not sure will it happen-he said he watch TV news and think it is good for scientists	
	look at what happened 2 years ago	
	no answer	
	no question to answer	
	no question to answer	

Question 8 / education levels

Bachelor	Graduate
No	No
weak stomach	safety; not interested
the weightlessness and I don't like flying	I don't see why I should make myself uncomfortable, I feel fine on the ground.
what's the point?	safety of the flight
safety	too much life risk
not ready to die	don't like roller coasters-too scared
no answer	concerns are for physical well-being (doesn't want to vomit). No specific amenities would convince me to take the trip.
afraid of up and down motion of airplane-fear of falling	safety and no interest

no interest in space travel, concern about safety issues	no interest
motion sickness. If were drugged during flight	nothing; not interested
too much motion and potential for motion sickness	nausea; to be paid a lot
prove that it's safe	doesn't trust NASA
too risky; would rather see pictures and hear about it; sick easy	sickness
too high	no answer
it might be dangerous	I have inner ear problem with vertigo
not worthwhile to experience for citizen-no desire to be weightless for fun.	it is not her concerns, but probably for next 2 or 3 generations
motion sickness	
motion sickness	
health safety, the only thing that would make me more willing to try would be assured safety	
I don't want to die prematurely	
look what happened to 1987 or 1988 and also 2 years ago	
she said she look at what happened 2 years ago	
I rather look forward today than in the future. It is too early to tell.	
no answer	

APPENDIX G

RIT Market Survey (December 14, 2004) - question 11 / gender:

11. Richard Branson, president of Virgin Airways and star of his own reality show, has announced that he will offer suborbital flights in about 3 years. Do you think that he will be able to accomplish this in 3 years?
    ☐ Yes ☐ No
    If you answered No, how long (if ever) do you think it will be before such rides are offered?

Question 11 / gender

No	
MALE	FEMALE
3-5 years	4 years
5-10 years	5 years
5-10 years	5 years
10 years	10 years
10 years	7 years
5-10 years	5 or 6 years
50 years	7 years
20 years	7-10 years
5 years	no answer
3 years	15 years
10 years	no answer
7-12 years	10 years
5+ years	15 years
5-7 years	7 years
2011	5-10 years
2010	at least 10-15 years
10 years	5-10 years
no answer	8-10 years
no answer	2013
2015	2015
6 years	10 years
2008	no answer
5-10 years	7 years
5-10 years	2050
5 years	2020
no answer	5 years
no answer	no answer
6 years	2010
10 years	2010
no answer	2010
no answer	5 years
no answer	5 years
20 years	6-10 years
20 years	4-5 years

5-7 years	10 years
forget it!	no answer
not sure	no answer
long term	no answer
no answer	10 years
10 years	20 years
4 years	7 years
10 years	no answer
not optimistic	10 years
no question	no answer
no answer	10 years
10 years	more than 50 years
about 5 years	too early to tell
	no answer
	no answer
	no answer
	20 years
	no question placed
	?
	no answer

APPENDIX H

RIT Market Survey (December 14, 2004) - question 11 / age groups:

11. Richard Branson, president of Virgin Airways and star of his own reality show, has announced that he will offer suborbital flights in about 3 years. Do you think that he will be able to accomplish this in 3 years?
    □ Yes □ No
    If you answered No, how long (if ever) do you think it will be before such rides are offered?

Question 11 / age groups

18-30	31-45	46-60	over 60
No	No	No	No
5 years	4 years	3-5 years	5-10 years
5 years	5-10 years	5-10 years	15 years
7 years	10 years	5-10 years	no answer
7 years	10 years	2011	2008
5-10 years	10 years	2010	2010
15 years	5 or 6 years	2013	no answer
20 years	7-10 years	10 years	no answer
5-7 years	no answer	5 years	
2015	50 years	5-10 years	
no answer	no answer	2010	
7 years	5 years	5 years	
2050	10 years	4-5 years	
2020	3 years	10 years	
6 years	10 years	10 years	
no answer	7 years	no answer	
5-10 years	7-12 years	no answer	
by 2010	5-10 years	no answer	
no answer	at least 10-15 years	no answer	
no answer	5+ years	5-7 years	
no answer	10 years	more than 50 years	
10 years	no answer	no answer	
20 years	2005	no answer	
7 years	5 years	no answer	
about 5 years	5 years		
10 years	6 years		
10 years	6-10 years		
no answer	no answer		
20 years	long term		
20 years	20 years		
forget it	10 years		
not sure	no answer		

too early to tell	?		
no additional answer			
10 years			
4 years			
no question asked			
I'm not optimistic			
no answer			
10 years			

APPENDIX I

RIT Market Survey (December 14, 2004) - question 11 / educational levels:

11. Richard Branson, president of Virgin Airways and star of his own reality show, has announced that he will offer suborbital flights in about 3 years. Do you think that he will be able to accomplish this in 3 years?
    □ Yes □ No
    If you answered No, how long (if ever) do you think it will be before such rides are offered?

Question 11 / educational levels

Less Than HS	HS	Some College	Bachelor's	Graduate
No	No	No	No	No
no answer	5-10 years	10 years	4 years	3-5 years
	5-10 years	10 years	5 years	5-10 years
	7-10 years	at least 10 -15 years	5 years	10 years
	15 years	5-10 years	10 years	no answer
	2015	5-10 years	7 years	50 years
	10 years	10 years	5 or 6 years	5 years
	no answer	no answer	no answer	3 years
	no answer	not sure	20 years	10 years
	2020	no answer	15 years	7 years
	5 years	no answer	7-12 years	2010
	6 years	10 years	5-10 years	5-10 years
	2008	4 years	5+ years	5 years
	2010	no question	5-7 years	6 years
	2010	no question	2011	6-10 years
	5 years		2013	4-5 years
	no answer		no answer	10 years
	no answer		7 years	10 years
	no answer		2015	no answer
	10 years		2050	no answer
	7 years		no answer	10 years
	20 years		5-10 years	no answer
	long term		2010	5-7 years
	more than 50 years		5 years	10 years
	I'm not optimistic; no question		no answer	
			20 years	
			about 5 years	
			10 years	

			no answer	
			20 years	
			forget it	
			no answer	
			no answer	
			10 years	
			no answer	
			?	

APPENDIX J

RIT Market Survey (December 14, 2004) - question 12 / gender

12. Cost aside, would you take a ride like that? □ Yes □ Maybe □ No
If your answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?

Question 12 / gender

Maybe	
MALE	FEMALE
safety	success rate/ work out glitches
safety issues	I'm not sure I would like something like that; I'd be scared of safety
not so much a concern, just don't know if I'd like it.	it wastes time
safety, would it be worth it?	dangerous, not interesting
accidents	scary
safety, sick	safety of flight
I don't want to make predetermined	biggest concern is safety and would prefer to take ride after many successful trips
motion sickness; to get paid for having the experience	rushing to make it into space is not a priority with having poor people
safety; if Branson gives security for family well-being	safety first
flight to that altitude would be dangerous	is the flight safe; what safety precautions are in place
if the ride was not too expensive and there was adequate training beforehand it would possible to go without being unprepared for the experience	cost prohibitive
crashing	change my age to 30
new idea in flight and do not want to be a test dummy.	I'm concerned I would get sick

not first	if the ride were brief and not physically uncomfortable or turbulent or bumpy I might go.
flight safety and advancement of science, space, and flight technology	if the transportation were proven to be safe over time, there would be less worry about the catastrophic failures
I'm too fat to float	would the trip be safe? How would I be assured that there would not be problems with the equipment or crew
afraid of heights	too dangerous. You would have to pay me.
price and safety	I would need to go to a different place.
	only if there was a contract that said everything was safe and if something wrong happens then money would go to the person's family if they die.
	nervous how new concept is
	too old? Cool experience
	because I have heart problems, would that be a problem?
	she is not sure of spending money on it
	I'm scared of airplanes so going to space is worse
	space is just too far out
	a little scared. If more people go up there.
	getting sick - safety must be assured
	cost and motion sickness
	again I'm concerned about safety
	too early to tell
	too early to tell-she said can't think of what concerns
	afraid of heights/ getting sick

Question 12 / gender

No	
MALE	FEMALE
sickness	no concerns/ not interested
vomiting, nothing	no concerns/ not interested
the ride sounds boring and uneventful	don't like those kinds of rides
safety of flight and I see no real need to go to the edge of space	again I don't like flying
death awaits	coming back in one piece
no answer	not interested
no answer	sickness, heights, for lots of money
probably can't see much of space on this ride	I don't see why I should make myself uncomfortable; I feel fine on the ground.
safety and no interest	not interested in such a flight
safety	no answer
afraid of heights	once again, I don't think I could trust technology to the fullest
no answer	terrified of heights
what is the point? You are not going to another destination	no too scared for safety
motion sickness; can't feel sickness	motion sickness. If drugs were used to avoid the sickness
prove that it is safe	space sickness; if the ride could be simulated into virtual reality ride
not interested; stay on earth	air/space travel would be too fast and hazardous. unless the ascent and descent were gradual it would be too scary.
doesn't like airplanes	dangers of space flight and malfunction of spacecraft in general are the primary concerns
too high	no interest
no answer	no answer
age	crashing

not interested	safety and longer weightlessness and I don't trust anything built in haste.
no answer	nothing; not interested
the technology is not yet developed	too old; would send grandchildren
I don't want to die prematurely	dizzy
look what happened to 1987 or 1988 and also 2 years ago	doesn't like flying
too much $	afraid of heights
afraid of high speed. Not sure what will it happen. He said he watched TV and is good for scientists	I'm afraid of heights, but if I wasn't I would definitely go
airsickness	too old to go on it-may be bad on the body
concerns-getting sick. Would take 5 years of accident-free flight travel	nausea; too be paid a lot
afraid of heights	no answer
	my age
	does not like training - time consuming
	safety of the flight
	I have inner ear problem with vertigo
	might be risky
	she said look at what happened 2 years ago.
	it is not her concerns, but probably for the next 2 or 3 generations
	look at what happened 2 years ago
	she said she was too old and that she's always done just fine with her feet planted on the ground and there's no reason to change
	no answer
	no question asked
	no question asked

APPENDIX K

RIT Market Survey (December 14, 2004) - question 12 / age groups

12. Cost aside, would you take a ride like that? □ Yes □ Maybe □ No
If your answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?

Question 12 / age groups

18-30	31-45	46-60	Over 60
MAYBE	MAYBE	MAYBE	MAYBE
I'm not sure I would like something like that. I'd be scared of safety.	safety issue.	safety	not so much a concern, just don't know
it wastes time	success rate. work out glitches	scary	change my age 30
dangerous. Not interesting.	safety. Would it be worth it?	safety; sick	
safety of flight	accidents	if the ride was not too expensive and there was adequate training.	
rushing to make it into space is not important with having poor people still living	the biggest concern is safety and would prefer to take the ride after many successful trips	would the trip be safe? How would I be assured there would not be problems with the equipment or crew.	
I don't want to make predetermined guess	safety first	crashing	
I'm concerned I would get sick	is the flight safe? What safety precautions are in place?	too old? Cool experience.	
motion sickness. To get paid for having the experience	cost prohibitive	I'm scared of airplanes so going to space is worse.	
too dangerous. You would have to pay me.	safety. If Branson gives security for the family well being.	a little scared. If more people go up there.	

I would need to go to a different place	flight to that altitude would be dangerous	not first.	
new idea in flight- don't want to be a test dummy	if the ride were brief and not physically uncomfortable (very turbulent or bumpy) I might not go.	cost + motion sickness	
getting sick. Safety must be assured.	if the transportation were proven to be safe over time there would be less worries about catastrophic failures.	flight safety and advancement of science, space and flight technology.	
again, I'm concerned about safety.	nervous how new concept is		
too early to tell. She said she can't think of what concerns.	because I have heart problems- would that be a problem?		
I'm too fat to float	she's not sure if spending money on it		
afraid of heights	space is just too far out.		
no add. question	afraid of heights/ getting sick.		
too early to tell.			

Question 12 / age groups

18-30	31-45	46-60	Over 60
No	No	No	No
not interested	sickness	terrified of heights	no concerns/ not interested
the ride sound boring and uneventful	no concerns, not interested	no answer	safety of flight and I see no need to go to the edge of space
death awaits	don't like those kind of rides	no answer	not interested in such a flight
space sickness if the ride simulated into a virtual reality ride	again I don't like flying	no, too scared for safety	safety and no interest.
afraid of heights	coming back in 1 piece	probably can't see much of space on this ride.	no interest
what is the point? You are not going to and their destination.	sickness, heights, for lots of money	motion sickness. If drugs were used to avoid the sickness.	no answer
safety and longer weightlessness and I don't trust anything built in haste.	vomiting, nothing	air/space travel would be too fast and hazardous. Unless the ascent and descent would be gradual it would be too scary.	no answer
motion sickness, can't feel sickness.	I don't see why I should make myself uncomfortable. I feel fine on the ground.	dangers of space flight and space travel are the primary concerns	too old, would send grandchildren
nothing not interested	no answer	crashing	doesn't like airplanes
not interested-stay on earth	once again, I don't think I could trust technology to the fullest.	prove that its safe	dizzy
I'm afraid of heights, but if I wasn't I would definitely go.	safety	doesn't like flying	age
no answer	no answer	too high	my age

not interested	look at what happened 2 years ago.	afraid of heights	she said she was too old and she's always done just fine with her feet planted on the ground and there's no reason to change.
does not like training; time consuming	afraid of height speed-not sure what will happen-he said he watched TV news and think its good for scientists	too old to go on it-maybe bad on the body	no additional question
the technology's not yet development	it is not her concerns, but for probably next 2 or 3 generations	nausea; to be paid a lot	
I don't want to die prematurely	no answer	no answer	
look at what happened to 1987, 1988, and also 2 years ago.		safety of the flight	
too much money		I have inner ear problem with vertigo	
no add. Question		might be risky	
		look at what happened 2 years ago	
		air sickness	
		concerns-getting sick it would take 5 years of accident free flight travel.	
		afraid of heights	

APPENDIX L

RIT Market Survey (December 14, 2004) - question 12 / education level

12. Cost aside, would you take a ride like that? ☐ Yes ☐ Maybe ☐ No
If your answer is Maybe or No, what are your concerns about such a ride and what would it take to make you want to ride?

Question 12 / education level

Less than HS	HS	Some College	Bachelor	Graduate
No	No	No	No	No
safety of the flight	no concerns-not interested	don't like those kinds of rides	sickness	not interested
not interested	sickness, heights-for lots of money	vomiting, nothing	no concerns, not interested	same as above
	space sickness. If the ride could be simulated into a virtual reality ride	once again I don't trust technology to the fullest	again I don't like flying	safety of flight and I see no need to go to the edge of space
	same as before	terrified of heights	coming back in one piece	no answer
	no answer	no answer	the ride sounds boring and uneventful	no answer
	no answer	same as above	not interested in such a flight	no too scared for safety
	what is the point? You're not going to another destination	I'm afraid of heights, but if I wasn't I would definitely go.	death awaits	dangers of space flight and malfunction of spacecraft in general are the primary concerns
	crashing	my age	probably can't see much of space on this ride.	same as above
	too old; would send grandchildren	too much money	motion sickness. If drugs were used to avoid the sickness	no interest
	doesn't like airplanes	airsickness	air/space travel would be too fast and hazardous. Unless the ascent and descent were gradual it would be too scary	nothing; not interested

	dizzy	she said she was too old and that she's always done just fine with her feet planted on the ground and there's no reason to change	safety	nausea to be paid a lot
	doesn't like flying		safety and longer weightlessness	no answer
	afraid of heights		prove that it's safe	no answer
	no answer		not interested-stay on earth	as stated above
	age		too high	same as above; number 8
	does not like training. Time consuming		too old to go on it. May be bad on the body.	
	same as above; number 8		the technology is not yet developed	
	number 8		I don't want to die prematurely	
	afraid of heights		might be risky	
	no add. Question		same as above; number 8	
	no add. Question		same as above; number 8	
			concerns - getting sick. It would take 5 years of accident-free flight travel.	

Question 12 / education level

Less Than HS	HS	Some College	Bachelor	Graduate
Maybe	Maybe	Maybe	Maybe	Maybe
space is just too far out	no so much a concern just don't know if I'd like it	accidents	I'm not sure I would like something like that. I'd be scared of safety.	safety
	safety, sick	scary	It wastes time	safety issue
	rushing to make it into space is not important with have poor people still living	change my age to 30	safety of flight	success rate. Work out glitches.
	if the transportation were proven to be safe over time, there would be less worry about catastrophic failures	safety if Branson give security for the family well-being	safety first	safety; would it be worth it?
	I would need to go to a different place	if the ride was not too expensive and there was adequate training beforehand it would be possible to go without being unprepared for the expensive.	I don't want to make predetermined guess	biggest concern is safety and would prefer to take the ride after many successful trips
	crashing	same as above. Don't want to be test dummy.	Is the flight safe. What safety precautions are in place.	flight to that altitude would be dangerous.
	not first	afraid of heights	cost prohibitive	because I have heart problems. Would that be a problem?
	getting sick. Safety must be assured		same as above	She is not sure if spending money on it
	afraid of heights-getting sick		motion sickness. To get paid for having the experience.	I'm scared of airplanes so going into space is worse.

	I'm too fat to float		If the ride were brief and not physically uncomfortable (very turbulent or uncomfortable) I might go.	same as above
			would the trip be safe? How would I be assured that there would not be problems with the equipment or the crew?	flight safety and advancement of science, space, and flight technology
			too dangerous. You would have to pay me.	price and safety
			nervous how new concept is	
			too old? Cool experience.	
			cost and motion sickness	
			again I am concerned about safety.	
			too early to tell.	

APPENDIX M

RIT Market Survey (December 14, 2004) - question 16

16. A Las Vegas entrepreneur has received approval for an inflatable space habitat. He has offered a $50 million prize for anyone who can create a rocket to reach the habitat (about 350 miles up)-without government support. Do you think this will happen by 2010? □ Yes □ No

    If you answered No, how long (if ever) do you think it will be before a visit to a space habitat is offered as a tourist destination?

Question 16

NO
2020
15 - 20 years
2015-2020
2020
in 10 years
in 50 years
in 20 years
2020
10 years
2025
15 years
20 years
20 years
50 years
5 years
20 years
2030
25-40 years
20 or more years
30 years
technology needs to be more advanced at least another 10 years after 2010
2035
no answer provided
2015
2015
2018
2020
in 20 years
in 2020
in 20 years

20-25 years ahead
2045
2050
no idea
2020
2015
2012
2050-2080
2015
2060
20 years
no answer
2014
2020
2020
2020
2015
2030
2030
20 years
20 years
no answer
2020
2030
2015 at least
50 years from now
another 10 years from now
15 years
10 years
15 years
15-20 years
no answer
no answer
10 years
20 years
not answered
30 years
2200
15 more years
no answer
30 years
100 years
no answer
20 years
15 - 20 years
a century later
100 years

probably 2050
long term
not answered
probably 200 years
2015
30 years
not answered
not answered
20 years
30 years
2012
2020
20 years
no answer
no answer
2015
by 2020
not answered
not answered
2050
30 years
?

APPENDIX N

RIT Market Survey (December 14, 2004) - question 17

17. Cost aside, would you visit a habitat in space? ☐ Yes ☐ Maybe ☐ No
If the answer is Maybe, what are your concerns about such a visit and what would it take to make you consider a visit?

Question 17

MAYBE
it depends on how commercial it was and if I was safe and such
who is running it
dangerous, not interesting
again scary
safety
if flight is not stressful on the body and I would be with at least one family member, most likely my husband
change my age to 30
safety
not that adventurous
comfort in the accommodation. The full knowledge and awareness of the habitat
malfunction problem with space habitat. Safety parameter is 100%
the safety and the competent staff to run would be necessary
adequate training for the trip would be essential. The trip could be too expensive
would it be difficult to adjust to life in space? Would sleeping be difficult or impossible?
safety, food, getting space sick
it might be boring. There should be distractions
crashing
same as #12

people have gone already and it is safe to go
if it is worth going to for the amount of money spent. Can go to different other places. Dangerous and if something happens far from help.
not answered
family to think about. Not young adventurous
if I knew more about it plus felt differently about it then
weird to think about. Don't know if safe or interesting
not answered
if I wasn't afraid of heights yes
b/c of the heart problem
concern for safety
getting sick, others sick
safety
no answer
cost and motion sickness
safety
safety; alien attacks
survivability and any modifications changes if physical and social behavior
crashing
same as question #2
health need to learn more about trip visit; side effects
no answer

APPENDIX O

RIT Market Survey (December 14, 2004) - question 18

18. Your visit would be in an inflatable habitat perhaps about the size of two oversize Winnebago RVs. Would you want to visit even though the quarters might have six to eight visitors in that space for 72 hours?
☐ Yes ☐ Maybe ☐ No
If you answered Maybe, what are some of your considerations about living accommodations?

Question 18

MAYBE

not knowing the inhabitants safety
if the size of the living quarters were more spacious and private
too many people in a small space
need to be bigger
interfering with other people's personal space
would there be separate quarters for each party living and sleeping? If not the experience could be spoiled by an upset or nervous time
being too close to people I don't know. Need space
it would need to be people I know and get along with.
small space, clutter, too many people
would want to know them
can pop
tight quarters may be not worth experience
good experience. Weird to think about

not sure
too long
bathroom; type of sleeping environment
little uncomfortable unless I knew all the people
depends on if they knew the people and got along
being with people that were not fun
claustrophobia
tight quarters make me nervous
I hate being around people
none
not answered

APPENDIX P

RIT Market Survey (December 14, 2004) - question 19

19. What would you like to do while you are there or during any part of the trip?

Question 19

take pictures
no answer
have the ability to view or hear info on related significantly aspects of the experience
no answer
take lots of pictures and video
celebrate! pictures!
video record and possibly have a video phone conference
photograph
go to the moon, see earth from outer space
I am not sure-see if I felt healthier!
walk on the moon. Get something of souvenir
space walk, walk on the moon, eat space food
take a space walk
Watch TV
fish
walk on the moon.
bowl, see the sights, relax
relax and look at the earth
spa, look out the window, sunbathe
not interested
site see and have like a casino
see sites-the moon, earth
a casino, massage, hot tub, look out the window
take pictures, site see
not applicable
not applicable
take pictures
not applicable
admiring the universe
take pictures and play
not applicable
take pictures and view the surroundings
look at space only
take the scenery in if there are windows
really polar, but seeing space would really be an experience
paying attention to PPL and how they act
if it was safe

not much
nothing
no answer
not answered
sleep
no answer
no answer
space walk
space walk
don't know
take a picture
see the earth and moon, take pictures, bounce around in weightlessness
no answer
take pictures of earth
take lots of pictures
take pictures, call home, play ping pong.
enjoy everything there is to enjoy
I don't feel comfortable with technology I am not familiar with.
see the sights
moon walk
look out at God's creation
observe, look around, not much else to do.
look at stars
look back at earth
shopping, stargazing, it would be an unbelievable experience
take pictures, pray for safe return
stare at stars and other planets
explore the habitat and meeting new PPL
too look at earth, floating in space and stars
walk in the space
observe the space habitat structure and the stars
eat food upside down; earth viewing
float in space in a few minutes, search for other forms of life.
float in space
space jump
view the earth and experience space as the astronauts do.
enjoy the experience of weightlessness
see earth from space
be in a weightless environment and compare my experience to that of other astronauts (perhaps watch video footage of past shuttle missions)
take pictures of what you can see from space
watch out the window and listen to inspiring music. Record the event of my trip to share with everyone.
experience the differences in doing everyday things while being weightless. Seeing space for myself.
take pictures out the window. Eat sophisticated cuisine

look at space and the earth
read, shop, eat, just lie and do normal things
drink some astronaut Tang
no idea
try to maintain sanity
trying not to get sick
not get sick
experience weightlessness
float and eat
party/ socialize
wake and go outside
take pictures
stay inside
swim, eat, relax, be on vacation
visit walk outside
study the effects on my body. Walk outside
look at the stars
look at the earth and stars
look at the earth
float and do somersaults
float and do flips
look at the earth and stars
float
take pictures, float and drink, video camera
look at the planets
look at the stars and planet
fly around
float around
take in the view and relax
take in the sites
look at stuff
enjoy weightlessness. Take in the view
look at the stars
fly around
don't know
moonwalk, sports
moonwalk, take pictures
moonwalk
sports
float in space, get pictures
nothing
pictures
take pictures, stare outside window seat
pictures
doesn't want to go
doesn't want to go
float around
get back alive

I don't know maybe float and take pictures to remember
I would like to try and eat in space to see how different it feels from normal eating on earth.
I would like to take pictures and float around
record the whole trip and take pictures of the earth from up in space to remember my flight.
I just want to float around
take pictures and eat M&M's in space
I would like to see how the moon and the earth look like in real life from outer space
take pictures and fly
not answered
enjoy weightlessness. Be instructed about life in space, the different planets, do exercise
take all the pictures I can and keep a diary
take many pictures
I would record every single moment of it
take many pictures
take pictures and record everything
take pictures and record in a video camera almost every moment possible
go out and see the stars
sightseeing of course
look around, jump
sightseeing
float out in space
sightseeing, float in space
touring, sightseeing
walkout in space and float
look at the stars
views of earth ad space, spacewalk
photos
photos
eat chocolate
see the stars
look at stuff
push buttons
play sports, spacewalk, drink
eat fine food. Observe the earth
speak to loved ones
not answered
take pictures
take pictures/ spacewalk
take in the view!
swim around space
look at the earth from space
enjoy the trip with happy feelings!
talk with the family at home and tell them what I see

close my eyes
enjoy the scenery
exploring
not answered
watch TV or movie inside my helmet
sightseeing
take pictures
see aliens and collect space rocks
sleep and eat
not answered
take pictures
collect samples and pictures
to engage in simple sports activity
N/A
can't think of one
not sure/ look at Star Wars movies that is what she likes to do.
N/A
N/A
N/A
N/A
look at Star Wars-she wants to do that
plot global domination
video tape
not answered
look for other planets. watch to
take pictures. Use email to show family/ friends/ photos
take pictures
normal stuff
spins/ and do flips/ possible watch and eclipse
sightseeing/ check out constellations
play cards
look at the stars up close
chase a dog
eat M&M's
fly like Peter Pan
look around outdoors and do flips
play golf
float
walk outside
not answered
eat at my restaurant
eat skittles
look outside
go outside, look around, and walk on the moon
go outside and visit the moon
nothing because I am not going
float around, collect rocks, and bounce
jump around and explore

hop around and have fun
jump around the craters
stay in habitat and eat
not sure
take a tour inside. Observe the scene
fly in zero gravity
wants to take lots of pictures
wants to see earth and walk
love to sleep
not answered
see the earth from space
not answered